

**THE JAMAICA SCHOOL READINESS ASSESSMENT
REPORT OF THE PHASE 1 PILOT IN THE PARISH OF
WESTMORELAND**



Maureen Samms-Vaughan
Early Childhood Commission
April, 25, 2015

TABLE OF CONTENTS

LIST OF TABLES	3
ACKNOWLEDGEMENTS	5
EXECUTIVE SUMMARY	6
SECTION 1:	
AN INTRODUCTION TO THE CONCEPT OF SCHOOL READINESS	7
SECTION 2:	
SCHOOL READINESS AND NATIONAL DEVELOPMENT	12
SECTION 3:	
THE JAMAICA SCHOOL READINESS ASSESSMENT INSTRUMENTS	18
The Eleven Question Screen	
The Child Behaviour Rating Scale	
The Early Learning Scales	
SECTION 4:	
IMPLEMENTATION OF THE PILOT	28
Selection of Parish	
Training of ECC Staff	
Sensitisation and Training of ECI Staff (Training of Trainers)	
Distribution and Collection of Instruments	

Feedback from ECI Staff on the Administration Process

Data Entry

Data Analysis

SECTION 5:

CHILD OUTCOMES 34

Participation Rates

Sample Description

Child Development Status

Child Behaviour Status

Child Early Learning Skills Status

SECTION 6: 57

CONCLUSION AND NEXT STEPS

REFERENCES 60

LIST OF TABLES

Table 3.1	Summary of Responses to Utility Statements for CBRS
Table 3.2	Summary of Responses to Utility Statements for Early Learning Scales
Table 3.3	Means, Standard Deviations, Cut-off Scores and Percent Identified by Early Learning Sub-Scales
Table 3.4	Summary of Test-Retest and Inter-Observer Reliability (Pearson Product Correlational Analyses) for Early Learning Sub-Scales
Table 5.1	Distribution of School Type, Participating Schools and Participating Children
Table 5.2	Proportion of Four Year Olds in Schools with a Trained Teacher by School Type
Table 5.3	Proportion of Four Year Olds for whom Teachers Report Developmental Concerns using the Eleven Question Screen
Table 5.4	Number of Concerns on EQS by Gender
Table 5.5	Child Development Status by Gender using the EQS
Table 5.6	Child Development Status by School Type using the EQS
Table 5.7	Prevalence of Individual CBRS Behaviour Concerns by Gender
Table 5.8	Prevalence of Individual CBRS Behaviour Concerns by School Type
Table 5.9	Prevalence of Individual CBRS Behaviour Concerns by PATH Beneficiary Status
Table 5.10	Distribution of Total Behaviour Concerns
Table 5.11	Behaviour Problems by Gender, School Type and PATH Beneficiary Status
Table 5.12	Prevalence of Individual Approach to Learning Concerns
Table 5.13	Individual Approach to Learning Concerns (Children Scoring Not Yet) by Gender
Table 5.14	Individual Approach to Learning Concerns (Children Scoring Not Yet) by School Type
Table 5.15	Individual Approach to Learning Concerns (Children Scoring Not Yet) by PATH Beneficiary Status
Table 5.16	Approach to Learning Problems by Gender, School Type and PATH Beneficiary Status
Table 5.17	Prevalence of Individual Early Literacy Tasks

Table 5.18	Individual Early Literacy Task Concerns (Children Scoring Not Yet) by Gender
Table 5.19	Individual Early Literacy Task Concerns (Children Scoring Not Yet) by School Type
Table 5.20	Individual Early Literacy Task Concerns (Children Scoring Not Yet) by PATH Beneficiary Status
Table 5.21	Early Literacy Problems by Gender, School Type and PATH Beneficiary Status
Table 5.22	Prevalence of Individual Early Numeracy Tasks
Table 5.23	Early Numeracy Task Concerns (Children Scoring Not Yet) by Gender
Table 5.24	Individual Early Numeracy Task Concerns (Children Scoring Not Yet) by School Type
Table 5.25	Individual Early Numeracy Task Concerns (Children Scoring Not Yet) by PATH Beneficiary Status
Table 5.26	Early Numeracy Problems by Gender, School Type and PATH Beneficiary Status
Table 5.27	Summary of Readiness Problems
Table 5.28	Distribution of Type of Readiness Problem by Number of Problems
Table 5.29	Coexistence of Early Literacy and Early Numeracy Problems
Table 5.30	Coexistence of Behaviour Problems with Literacy and Numeracy Problems

ACKNOWLEDGEMENTS

The pilot of the Jamaica School Readiness Assessment would not have been possible without the active participation of the parents, pre-school children, principals, teachers and early childhood practitioners of the parish of Westmoreland.

The University of Oregon team, led by Prof. Jane Squires, developed and/or evaluated a number of the instruments used in the assessment.

The administration of the assessment was conducted by the staff of the ECC. Development Officers and Inspectors played an integral role in identification of children, training of teachers and early childhood practitioners, collection of forms and data entry. At the managerial level, Mrs. Karlene Deslandes, Director of Regulation and Monitoring supervised the activities of the Development Officers and Inspectors; Mr. Pierre Buckley, IT Manager developed the system for data entry and Ms. Shamair Henry, Director of Cross-Sectoral Co-ordination and Ms. Joulene Martin, Research Manager, managed the database.

The ECC also acknowledges with thanks the support provided by UNICEF Jamaica, which made this pilot possible.

EXECUTIVE SUMMARY

The readiness of children for primary school is known to be a predictor of their success. Modern concepts of readiness recognise that the child's innate capabilities, as well as the home and school environment are important contributors to readiness. Additionally, readiness is not limited to academic skills, but also includes socio-emotional and behavioural skills.

Many developed countries undertake readiness assessments of children in pre-school, for the purpose of identifying those children who need additional support and intervention. With the knowledge of the importance of readiness assessments, the Early Childhood Commission included the development and implementation of a readiness assessment, the Jamaica School Readiness Assessment (JSRA), for four year old children in its National Strategic Plan for ECD.

The JSRA includes a measure of development, a measure of behaviour and a measure of early learning; the early learning measure has three sub-scales of Approach to Learning, Early Literacy Skills and Early Numeracy Skills.

The JSRA was piloted in the parish of Westmoreland, a parish with very limited services for children with developmental, behaviour or learning disorders, during the month of June 2014. Parents of children in all schools attended by four year olds were invited to participate. The school participation rate was high at 93%. Teachers were trained by ECC staff to complete the assessment tools. A feedback session held with teachers strongly supported the implementation of the pilot, but also made some recommendations to improve the process and ensure that no eligible child was excluded from the assessment.

The assessment identified 31% of children as having a development problem, 10% having a behaviour problem, 20% having a literacy problem and 19% having a numeracy problem. Boys, children attending government operated infant schools and departments and children on the PATH problem were more likely to have behaviour problems, literacy and numeracy problems. The presence of a literacy problem was strongly associated with having a numeracy problem and vice versa. Behaviour problems were strongly associated with having a literacy or a numeracy problem.

Overall 43% of children were identified with at least one problem that could impact readiness.

The JSRA was developed as a first phase screening assessment completed by teachers. In order not to overwhelm limited diagnostic services, use of a second more detailed screening tool is to be administered to those children who were identified as having readiness problems. At a national level, second phase screening is expected to occur at Resource Centres in each parish, administered by Development Officers in the presence of children's parents. Children who fail the second phase of screening will be referred for diagnostic evaluation.

The final stage in the assessment process of screening tools is their validation against diagnostic tools. The JSRA must now be validated by diagnostic assessment of children identified as having readiness problems and a control group of children without readiness problems.

SECTION 1

AN INTRODUCTION TO THE CONCEPT OF SCHOOL READINESS

A BRIEF HISTORY OF SCHOOL READINESS

School readiness has been documented in the European developmental literature since 1898. A review by Kagan and Rigby suggests that the concept did not gain acceptance in the United States until the 1920s when it was given serious attention by the International Kindergarten Union (Kagan & Rigby, 2003). Between then and 1990, research on school readiness has been frequently represented in the educational literature, but has often confused two different concepts, those of readiness to learn, which applies to children at all stages, and readiness for school, which applies to children commencing formal schooling (Kagan & Rigby, 2003).

The importance of high quality early childhood development (ECD) to children's academic and social outcomes at school and long term social and economic outcomes as adults, as demonstrated by the Perry Pre School Study, likely heralded the modern interest in children being "school ready" over the last two decades. Perhaps the wealth of research emanating from the Western World in this area was also the reason that the modern concept of school readiness was initially most widely used in this geographic area, and primarily in the USA.

MODERN CONCEPTS OF SCHOOL READINESS

In particular, school readiness became an important aspect of the national agenda in the USA when in 1989, President Bush and the nation's governors announced six national education goals, the first being that "By the year 2000, all children in America will start school ready to learn". This led to the establishment of a National Education Goals Panel (NEGP) in 1990, composed of a bipartisan group of policy leaders, who were tasked with monitoring the nation's progress in meeting the goals (Emig, 2000). Early childhood education was therefore brought into the mainstream K-12 educational policy discussions. Goal 1 Resource and Technical Planning Groups were formed to carry out the NEGP's charges surrounding readiness (Kagan & Rigby, 2003).

The Goal 1 Resource and Technical Planning Groups made a number of important contributions to the school readiness debate (Emig 2000; Kagan & Rigby, 2003). First, unlike the maturational theory of readiness, in which readiness was solely dependent on the development of the child, the group suggested that readiness in a child was an interaction between the child's various environments and the child. This led to the triple pronged understanding of readiness, comprised of readiness of children for school, readiness of schools for children, and family and community readiness or supports that would be required for children to be ready for school.

Further, the group identified five dimensions of readiness in the child, that included but were not limited to academic capabilities. This was a deviation from earlier understandings of school readiness that limited its dimensions to academic readiness. The five dimensions were:

1. Physical well-being and motor development
2. Socio-emotional development
3. Approaches to learning
4. Language development
5. Cognition and general knowledge.

Ten characteristics of ready schools were also identified:

1. Ability to smooth the transition between school and home
2. Strive for continuity between early childhood and primary level programmes
3. Utilise high quality instruction which help children learn and make sense of their complex and exciting world
4. Committed to the success of every child
5. Committed to the success of every teacher and every adult who interacts with children each day
6. Introduce or expand approaches that have been shown to raise achievement
7. Alter practices and programmes if they do not benefit children
8. Serve children in communities
9. Take responsibility for results
10. Have strong leadership

Finally, the group identified the family and community supports that were necessary for school readiness, through three major objectives:

1. All children should have access to high-quality and developmentally appropriate preschool programs that help prepare them for school.
2. Every parent in the United States will be a child's first teacher and devote time each day to helping his or her preschool child learn. To this end, parents should have access to the training and support they need.
3. Children should receive the nutrition, physical activity, and health care they need to arrive at school with healthy minds and bodies and to maintain mental alertness. To this end, the number of low birth weight babies should be significantly reduced through enhanced prenatal care.

The recent comprehensive conceptual report produced by UNICEF (UNICEF, 2012) acknowledges the global importance of school readiness. This has probably been due to the spread of the importance of ECD across the world, supported by recent research on the importance of ECD emanating from more and more developing countries.

The UNICEF report also highlighted some of the current controversies. For example, although there is international agreement on the importance of ECD, and therefore implicitly on the importance of children being ready for school, UNICEF reported some 150 definitions of school readiness identified in a Google Scholar search. The UNICEF report supported the shift from a maturational definition that allowed for quiet, focussed work to be the primary indicator of

school readiness (Gesell, Ilg and Ames 1974; Pandis 2001) to a more socially constructed concept, where readiness is bi-directional between the child and his/her environment (Murphy and Burns 2002). UNICEF also supported the broader domains of readiness, which include socio-emotional and behavioural skills, rather than the more narrow acquisition of literacy and numeracy skills aligned to a primary school curriculum.

The report also acknowledged that little is presently known about the characteristics of ready schools in low-resource and developing countries where the issues of schooling are dissimilar to those of developed countries.

EARLY LEARNING GUIDES

Further strides in school readiness were made in the USA in 2002, when states were encouraged to develop voluntary early literacy and early math guidelines for children between the ages of three and five and to align these with their K-12 standards (US Department of Education, 2006). Early Learning Guides (ELGs) for the early childhood level are similar to curriculum standards in that they state what children are expected to know and be able to do by age bands. In the USA, these are determined at the state level, with input from key early childhood personnel (Daily et al, 2010). While use of ELGs are not mandatory, voluntary use is encouraged through the provision of informational material and inclusion of ELG in training and professional development programmes.

A 2010 survey found that all states had ELGs for children 3 to 5 years and about a half had developed or were in the process of developing ELGs for children birth to three (Daily et al, 2010). All states had ELGs which included guidelines for language and literacy, with all but one or two also including guidelines for mathematics, socio-emotional development and physical development. Between 6 and 8 states did not include guidelines on science and creative arts studies, some 20 states did not have guidelines on social studies and 16 states did not have guidelines on approaches to learning. Approaches to learning, that area of development that describes a child's attention and engagement in learning, was described by the National Education Goals Panel as "the least understood, the least researched, and perhaps the most important dimension of school readiness (Daily et al, 2010)."

Because ELGs are set by states, there is variation in the expectations of young children's skills and abilities in each of the developmental areas.

In the United Kingdom, the equivalent of ELGs are the Key Stages. A Key Stage is a stage of the state education system in the UK, for which the educational knowledge expected of students is established. Key Stages were defined in the 1988 Education Reform Act and accompanied the first introduction of the National Curriculum. Key Stage 0 refers to the age range 3 to 5 years. In 2006, the Early Years Foundation Standards (EYFS) was defined in Section 39 of the British government's Childcare Act 2006. The EYFS comprises a set of Welfare Requirements and a set of Learning and Development Requirements, which must be followed by providers of care for children below 5 years old, the age of compulsory education in the United Kingdom. The details of the Welfare and Learning and Development requirements are not specified in the Act but in

separate Orders. The Welfare requirements apply to the whole of the UK, but the Learning and Development requirements apply only in England. The legislation took effect in September 2008.

READINESS ASSESSMENTS

The NEGP identified four specific purposes for assessing the readiness of young children (National Education Goals Panel, 1988). These are:

1. To promote children's learning and development in order to shape instruction for individual children by identifying what they already know and what they need more help with
2. To identify children who may need health or other special services (i.e. to screen children for developmental delays)
3. To monitor trends and evaluate programs and services in order to inform aggregate decisions; and
4. To assess academic achievement to hold individual students, teachers, and schools accountable for desired learning outcomes

A review of assessment practices in the USA in 2010 indicated that more than half (29 states), assess children in kindergarten (Daily et al, 2010). The majority of assessments are being used to guide individual instruction or for screening for developmental delays. Only 7 states use readiness assessments for the purpose of monitoring state levels of readiness. Assessments in these states utilise teachers' observations of children's skills and abilities in multiple developmental domains at the beginning of the kindergarten year. A state-designed assessment instrument or one adapted from an existing measure is typically used.

The National Research Council report on best practices in assessing young children indicates that the intended purpose of an early childhood assessment must determine how an instrument is designed or selected, how it is implemented, and how results are reported and used (National Research Council, 2008). The report also indicated a number of common challenges in assessing young children, including: a purpose that is ambiguous or not explicitly communicated, using assessments for multiple purposes, narrowly focusing assessments on language and mathematics to the exclusion of physical, social and emotional development; and difficulty in matching an assessment instrument to the specific purpose for which it was designed to be used.

In the United Kingdom, as part of the Early Years Foundation Standards, all early childhood providers are required to complete a profile on each child in the final term of the year in which they become 5 years old. This would typically be in the Reception year in primary school (or Kindergarten Year in the USA). The main purpose is to provide an accurate assessment of individual children at the end of the Early Years Foundation Stage. The profile requires teachers to report on each child's characteristics of effective learning in three areas (playing and exploring, active learning, and creating and thinking critically) and describes each child's attainment against 17 early learning goals, in seven domains of communication and language; physical development; personal, social and emotional development; literacy; mathematics; understanding the world and expressive arts and design.

SUMMARY

In summary, school readiness has been recognised as being due to both innate characteristics of the child and the child's external environment. Modern school readiness takes into account not just literacy and numeracy skills, but also includes other skills, such as motor and socio-emotional skills. Readiness assessments may have different foci; instruments used for readiness assessments must be relevant to the focus of the assessment.

SECTION 2

SCHOOL READINESS AND NATIONAL DEVELOPMENT

Readiness of children for primary school in Jamaica has been of concern because of poor rates of competence identified at the existing first national education assessment, the Grade 1 Readiness Inventory. As the Grade 1 Inventory is administered to children in the first term of primary school, impaired performance at this level is often considered to be due to the teaching and learning environment at pre-school. For early childhood personnel, readiness assessments are considered important because of research from the USA indicating that there is a high proportion of children with developmental, behavioural or learning disorders (15-18%) and an additional 7-10% experience school failure. Many are not identified prior to school entry (Boyle et al, 1994; Glascoe, 2000). As a result, the American Academy of Paediatrics Committee on Disabilities has recommended screening for developmental and behavioural disorders for the entire child population.

Readiness at the early childhood level is identified as being important to national development when it becomes included in national development plans. This chapter reports on the inclusion of readiness and readiness assessments in Jamaica's national development plans. Because readiness assessments are often used to screen and identify children with developmental delays, the inclusion of screening and early identification at the pre-school level is also relevant.

VISION 2030

Vision 2030 is Jamaica's first long-term National Development Plan which aims to put Jamaica in a position to achieve developed country status by 2030. It was approved by the Jamaican Parliament in 2009, after many years of development. There are 31 sector plans, including one for education (Education Sector Plan, Vision 2030 National Development Plan, 2009).

The Vision Statement For Education is " "Well - resourced, internationally recognized, values-based system that develops critical thinking, life-long learners who are productive and successful and can effectively contribute to an improved quality of life at the personal, national and global levels"

The first of eleven national strategies in the Education Sector Plan is: Ensure that children 0-8 years have access to adequate early childhood education and development programmes.

The Education Sector Plan has four goals:

1. Teaching and Learning Systems that are of International Standards
2. World Class School Environment
3. Attainment of equal and inclusive access and retention to ensure completion of secondary education and continuation to the Tertiary level
4. Decentralised systems for quality leadership, management and resourcing

Under Goal1, one of the main outcomes (Outcome 1.3) is ""Schools, Communities and Children are ready for Early Childhood Development Programmes ". The strategies to accomplish these are:

- 1.3.1 Establish an environment for all children 0-8 yrs to access high quality and developmentally appropriate programs
- 1.3.2. Strengthen school/home relationships and parental involvement in early education
- 1.3.3. Enforce mechanisms to address the psycho-social needs of children
- 1.3.4. Facilitate effective preventative health care
- 1.3.5. Improve Governance, Management, Monitoring and Evaluation system

The Early Childhood Sector is also represented under Goal 1, Outcome 1.5 which states "Secondary school leavers attain standards necessary to access further education, training and/or decent work and be productive and successful Jamaicans"

Specific Action 1.5.1.3. which is meant to implement and sustain a system of early detection and referral of children with special needs , is one of the actions for which the ECC and the MOE share responsibility.

MINISTRY OF EDUCATION NATIONAL EDUCATION STRATEGIC PLAN

The National Education Strategic Plan 2011-2020 has as its first Strategic Objective, provide equitable access and/or attachment to a high quality education system for all Jamaican: children ages 3-18 (National Education Strategic Plan, Ministry of Education). The main sub-objective for the pre-school years under this objective is to provide quality education for all children ages 3-5 years. One of the strategies to attain this sub-objective is "ECI cohort assessed for readiness to enter primary school". The target is 100% of the cohort leaving ECIs as at least emergent readers by 2016

SCREENING, REFERRAL AND EARLY INTERVENTION PRIOR TO THE EARLY CHILDHOOD COMMISSION (ECC)

In 2002, UNICEF Jamaica and the Department of Child and Adolescent Health partnered to begin the development of a comprehensive screening system for the early childhood period. It was felt at this time that there was little information on the domains of ECD for which a screening programme would be developed. The first output decided on was a situational analysis on the status of screening for nine developmental domains: general physical health, dental health, nutrition, cognition, behaviour, motor development, hearing, vision, speech.

This resulted in a special issue of a UWI journal, the Children's Issues Coalition entitled "Screening, Early Intervention and Referral for Health, Developmental and Behavioural Disorders in Jamaica". One chapter was devoted to each of the nine developmental domains, and

a tenth chapter summarised the recommendations. The main recommendations are presented below:

i) Policy:

Development of comprehensive ECD policy inclusive of screening and early intervention

ii) Tools:

- a) The child health record could be developed/adjusted as a home based screening tool to be used by parents
- b) A short screening tool should be developed for administration at well child clinic visits; parent reported instruments have been found to be sensitive.
- c) Objective readiness evaluations, including developmental and behavioural outcomes should be undertaken at pre-schools
- d) Tertiary level institutions should aim to provide diagnostic and therapeutic tools.

iii) Data Collection Systems

- a) Forms for data collection could include tear out carbonated slips from parent-held child health records an screening tools at health centres
- b) Community based rehabilitation services should be encouraged and supported in record keeping
- c) A national research project to identify the prevalence of disability for planning purposes should be undertaken
- d) Procurement of computers and ITR systems will be necessary to support data collection

iv) Human Resource and Facilities:

- a) Parents are the human resource at the home level; adequate public education on normal development, screening and early intervention is necessary
- b) The media should be used more for public education
- c) A family risk screening tool should be developed to identify those families that need additional support services and allow for targetted intervention
- d) A national screening programme should be a routine part of well child clinics.
- e) Review of and rationalisation of procedures at clinics, to include screening
- f) In-service training of health care workers
- g) Pre-school medicals should require sensory and developmental screening
- h) Changes in health and education professionals curricula and in-service training to include screening and early intervention should be instituted
- i) A national screening programme will identify more children at risk and require additional professionals in psychology and special education, but particularly those in the professions allied to medicine, such as speech and occupational therapists and audiologists. There are no training programmes for these professionals in the Caribbean; these need to be developed.
- j) A new professional group, an intermediary professional providing primary care intervention services will need to be developed.

- k) Centres providing comprehensive services for children with early intervention needs should be developed

ECC NATIONAL STRATEGIC PLAN FOR ECD

The ECC was established in 2003 for the purposes of co-ordinating and advancing the early childhood sector. The ECC developed the first comprehensive, cross-sectoral National Strategic Plan (NSP) for ECD 2008-2013, and then followed on with the second NSP 2013-2018..

The expected national impact of the NSPs are:

- i) critically thinking, socially competent, healthy children ready for life, and
- ii) parents who are informed, educated, involved and supported in meeting their children's early development needs.

The NSPs are effected through seven strategic objectives, five (5) of which involve key technical processes and two (2) of which involve organizational and administrative processes.

Strategic Objectives (Technical Processes)

1. Effective early childhood parenting, education and support
2. Effective preventive health care
3. Effective screening, early identification and referral for at-risk children and households
- 4 Safe, learner centred, well-maintained early childhood facilities
5. Effective curriculum delivery by trained early childhood practitioners

The technical processes reflect the life cycle approach, commencing with effective parenting, which begins before birth, and progressing to preventive health care and identification of children and households at risk, both of these being most effective in the first three years of life and matched by the frequency of contact with the health services during this period of life. The last two processes, addressing early childhood institution facilities and teacher quality reflect the period when the majority of Jamaican children are in pre-school.

It is important to note that the life cycle approach, while identifying the early childhood period when each process has its greatest impact, anticipates that the processes are also continuous. For example, though effective parenting is identified as having its greatest impact at the earliest point in the cycle, i.e. the first three years, effective parenting is necessary throughout the early childhood period and indeed, throughout the rest of childhood.

Strategic Objectives (Organisational and Administrative Processes)

6. Sector agencies achieving targets and governed by a results-oriented framework in a consultative environment
7. Timely, current and appropriate information available to support evidenced-based decision making for the sector.

The two organizational and administrative processes identify the aspects that are necessary to promote the efficiency and effectiveness with which state agencies and early childhood stakeholders must operate in order to ensure successful implementation of the technical processes.

Screening, Early Intervention and Readiness in the NSP 2008-2013

The ECC built on the prior work with UNICEF and included many of the recommendations in the NSP. Screening and Early Intervention is addressed in Strategic Objective 3. Readiness is addressed in Strategic Objective 7.

The mechanisms to achieve Strategic Objective 3 were:

1. Develop and implement a National Policy on Screening and Early Intervention
2. Develop and implement a system for early screening, early identification and intervention for children and families at risk
3. Ensure that trained specialists are available to assist children and families with special needs identified through screening programmes
4. Ensure that children with special needs have high quality programmes and services
5. Develop public education programmes to promote early identification and inclusion of children with special needs

The mechanisms to achieve Strategic Objective 7 are:

1. Develop an MIS system that incorporates sector information on child development, human and physical resources, research etc.
2. Monitor the status of young children's parenting support, health and development through:
 - Information collected at well child clinics, including parent reports from child health passport
 - Information collected through national population based surveys (JSLC)
 - Information collected through school based readiness assessment)
3. Provide annual reports to the public on the status of young children

The Age 4 Readiness Evaluation addresses a section of Mechanism 2 of Strategic Objective 3 (Develop and implement a system for early screening, early identification and intervention for children and families at risk) and a section of Mechanism 2 of Strategic Objective 7 (Monitor the status of young children through information collected through school based readiness assessment)

Relative to these mechanisms, the achievements of the first NSP were the development of three screening tools as below:

1. Family Risk Screening Tool - To identify families whose children are at social, developmental or health risks based on the families' circumstances.
2. A Child Development Screening Tool (Ages and Stages Jamaica Version or ASQ-J) - To be used to identify young children who show early signs of developmental delays or emotional and behavioural disorders

3. A School Readiness Evaluation (Jamaica School Readiness Assessment) - A school based assessment tool for four year old children.

Screening, Early Intervention and Readiness in the NSP 2013-2018

The task of the second NSP 2013-2018, is the implementation of the Jamaica School Readiness Assessment. A pilot in one parish was implemented to inform the national roll out.

SECTION 3

THE JAMAICA SCHOOL READINESS ASSESSMENT INSTRUMENTS

As a middle income country, the purchase of high cost existing readiness tools was not an option. Additionally, the academic expectations of Jamaican parents and teachers at the pre-school level is higher than that typically expected of similar age children in the USA, where many readiness assessments are developed. Finally, readiness assessments developed in other countries may not be culturally relevant to a Jamaican population.

Included in the ECC's National Strategic Plan was the development and/or adaption (i.e. cultural adaptation) of existing instruments, and particularly those that were open source. This chapter describes the derivation of the Jamaica School Readiness Assessment instruments.

The Jamaica School Readiness Assessment was designed as the first phase of a system to identify children who have developmental, behavioural or learning problems that are likely to impair their readiness for primary school, and for whom additional developmental and/or behavioural evaluation is necessary. Preschool teachers are responsible for completing the School Readiness Assessment on all children of four-years-old in preschool classrooms. The assessment is completed during the last two to three weeks of the last term, the Easter term, of school. It utilises the teachers' knowledge of the children in their classrooms, having taught them for the last year. Children are not required to undertake any formal tests.

This section describes the components of the assessment.

The School Readiness Assessment has three (3) components:

Part 1: The Eleven Question Screen

Part 2: The Child Behaviour Rating Scale

Part 3: The Early Learning Scales

- a) Approaches to Learning
- b) Early Literacy Skills
- c) Early Numeracy Skills

THE ELEVEN QUESTION SCREEN

Development

The Eleven Question Screen (EQS) is a Jamaican adaptation of the Ten Question Screen (TQS) (Appendix 1 and 2). The TQS was developed for use as part of the 1984 International Pilot Study of Severe Childhood Disability (IPSSCD). This study aimed to determine the feasibility of identifying children with severe mental retardation and other disabling conditions by means of short questionnaires completed by household survey (Belmont, 1984). It was designed for use in resource-poor settings, and is therefore short, easily administered and of low cost; it has always been a publicly available instrument. It was also designed to be culturally neutral, by excluding

culture-specific skills such as riding a tricycle. Instead, cultural norms are taken into consideration by asking parents or caregivers to compare their child's skills with that of the other children in the community. The TQS is applicable only to children between the ages of 2 and 9 years.

The EQS/TQS are screening tools and not diagnostic tools. A positive screen on the TQS/EQS is defined as a parental report of an impairment on one or more of the ten (or eleven) questions. The percentage of children screening positive therefore indicates those who are at greater risk of having a disability than their peers who screen negative. A positive screen does not indicate definitive diagnosis of a disability.

Description

The TQS requires primary caregivers of children aged 2–9 years to answer ten questions that screen for child impairment or inability in a number of areas. It has not been used for children under the age of 2 years, as it was felt that it might be difficult on the basis of ten simple questions to distinguish normal variability in development from disability (Durkin, 1991). For those over 9 years, and particularly those with intellectual disability, the TQS may no longer adequately evaluate age appropriate skills or may identify children who develop skills later than others, but still within the normal range (Durkin, 1991).

Six of the questions from the TQS (questions 1, 4, 7, 8, 9, 10) were designed to detect serious intellectual (ID) or cognitive disability. Questions 1 (delayed milestones) and 9 (impaired or delayed speech) are included among these, along with questions on learning and comprehension, because children with serious ID typically exhibit these characteristics. Two questions (questions 1, 5), including one of the ID questions (Question 1) are intended to detect serious motor disability. In addition, there is one question each to identify serious disabilities related to vision (question 2), hearing (question 3), and seizures (question 6) (Durkin et al, 1995).

The Jamaican adaptation of the TQS is more specific to developmental domains and includes eight questions on whether parents consider their children to have problems in the domains of gross motor, fine motor, vision, hearing, receptive language (comprehension), expressive language (speech), socio-emotional development and personal-social skills. The ninth question enquires of problems in learning at school and the tenth is open ended, enquiring of any parental concern in the area of learning, development or behaviour. Research using the adapted TQS in Jamaica, completed by parents of children 0-3 years, identified child behaviour as the single commonest area of concern (Samms-Vaughan, personal communication). As a result, an additional question on behaviour was added and the instrument renamed the EQS.

Psychometric Properties

A study in Bangladesh found that the original TQS had excellent sensitivity and high specificity for detecting serious disabilities in 2-9 year old children, with comparable validity for both genders and older and younger children within the age range (Zaman et al, 1990). Investigators using the TQS in Jamaica found that it had excellent sensitivity for serious motor, seizure, speech, vision, and hearing disabilities (Thorburn et al, 1992). Comparative analyses of the TQS in three countries (Bangladesh, Jamaica, and Pakistan) found that it had good reliability (alpha and kappa coefficients greater than 0.60) in all three countries as well as acceptable to excellent

sensitivity (>80%) for detecting serious cognitive, motor, and seizure disabilities (Durkin et al, 1994). However, there was relatively poor sensitivity for serious vision and hearing disorders that had not been previously identified. It was recommended that the TQS be complemented by tests of vision and hearing in order to detect these disabilities. Additionally, in all three countries, the screen had a low positive predictive value of less than 25% for serious disability ; this means that more than 75% of children who screen positive do not have a serious disability. However, the majority of children who screen positive without evidence of a serious disability on diagnostic evaluation were found to have either a mild disability or a medical condition requiring treatment, such as an ear infection, which could potentially lead to a disability if left untreated.

A positive screen result for any question would therefore need to be followed by a clinical diagnostic evaluation to confirm the presence or absence of disability.

International Use

The early studies mentioned above, using the TQS alone, indicated a prevalence of disability in 2–9 year olds at 8.2% in Bangladesh, 14.7% in Pakistan, and 15.6% in Jamaica. After clinical evaluation in Jamaica, 3.5% of children surveyed were found to have a severe disability and 7% to have some level of impairment. More recent studies in South Africa identified 10.8% to screen positive, with follow-up clinical evaluation identifying 3.6% as having a disability (Christianson et al, 2002). In Pakistan, 20.3% screened positive, with 6.2% diagnosed with a disability after evaluation (Yaqoob et al, 2004). In Kenya, 9% screened positive and 6% had a moderate to severe disability (Mung’ala-Oder et al, 2006). Overall, the studies indicate that the percentage of children screening positive on the TQ, and the prevalence of child disability based on clinical assessment of those screening positive, vary widely by country.

UNICEF included the TQS as a measure of disability in the third round of administration of the Multiple Indicator Cluster Survey (MICS3). The MICS is a household survey program developed by UNICEF to assist countries in monitoring the health and situation of women and children in low- and middle-income countries (LMIC). It was originally developed in response to the World Summit for Children, and aims to measure progress towards internationally agreed goals using standardized measures. The first round of MICS was conducted around 1995 in more than 60 countries, and the second (MICS2) in 2000 in 65 countries. MICS3 was one of the first surveys to use the same screen for disability across a wide range of countries. The TQS was selected, as of those few developing countries which attempted to measure child disability, many utilised the TQS. Twenty-six of the 50 countries in MICS3 included the optional TQS module on child disability.

The use of the TQS as a screen for disability in the MICS survey was considered feasible. The percentage of children screening positive for disability in the MICS3 survey ranged from 3% in Uzbekistan to 48% in the Central African , with 15 of the 20 countries ranging between 14% and 35%. The results suggest that a large proportion of children in LMIC are at increased risk of disability. There were no substantial differences in risk of disability by gender, age group or parental education, but children who did not access early learning activities and those in poverty were at greater risk of screening positive.

THE CHILD BEHAVIOUR RATING SCALE

Development

A behaviour measure was included in the assessment tools for school readiness as self-regulatory and social emotional skills at kindergarten entry have been demonstrated to be strong predictors of school success (Sektnan, McClelland, Acock, & Morrison, 2010). The Child Behaviour Rating Scale (CBRS) was selected for use as it is an open source instrument, the purpose of which is to examine children's behaviour with other adults and children in a classroom setting (Bronson et al, 1990). It has been used in research studies, to assess state kindergarten programmes and has demonstrated strong predictive validity with reading and math achievement in elementary grades (McLelland and Morrison, 2003; Matthews et al, 2009, Williford et al, 2014)

Description

The CBRS is a seventeen-item survey that assesses a child's self-regulatory skills, behaviour with other adults and children in a classroom setting, and socio-emotional development. There are five possible responses to each question:

- Never: The child **never** has the behaviour
- Rarely: The child **rarely or almost never** has the behaviour
- Sometimes: The child **occasionally or sometimes** has the behaviour
- Frequently/Usually: The child has the behaviour **often or most times**
- Always: The child has the behaviour **all the time**

"Never" or "Always" are unlikely to be responses that are assigned frequently, as even well behaved children have some problem behaviours at some time and even children with problems don't usually have problem behaviours all the time.

For 15 of 17 questions, the presence of the behaviour is appropriate (e.g. "Completes tasks", "Observes rules and follows directions without needing the teacher to keep reminding him/her"), so responses of "Never" or "Rarely" are those of concern. However, for questions 12 and 13 (e.g. "Says things which threaten or hurt children", "Physically hurts children"), the absence of the behaviour is appropriate, so "Frequently/Usually" and "Always" are the responses of concern.

Psychometric Properties

The properties of the CBRS were evaluated in two phases. In the first phase, its utility (including cultural sensitivity) was determined to allow for any adjustments prior to piloting for psychometric properties. In the second phase, true psychometric properties including descriptive statistics (mean and standard deviation), inter-observer reliability and internal consistency were

determined. In Phase 2, the mean and standard deviation was also used to develop cut-off scores, which would differentiate children who need additional support prior to or on entry to the primary school setting from those who required no intervention.

Procedures ensuring protection of human participants were approved by the University of West Indies and the University of Oregon institutional review boards and were followed in all research phases.

During Phase 1, 41 pre-school teachers completed the CBRS on children in their class. As shown in Table 3.1, teachers identified the CBRS as being a useful instrument that is appropriate to the culture.

Table 3.1

Summary of Responses to Utility Statements for CBRS

CBRS Utility Domains	Total	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Missing
	N	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Questions clear and easy to understand	39	15 (38.5%)	23 (59%)	0 (0%)	1 (2.6%)	0 (0%)	0 (0%)
Questions appropriate for child and family's culture	39	11 (28 %)	27 (69%)	0 (0%)	1 (3%)	0 (0%)	0 (0%)
Completing tool provided meaningful Information	39	10 (26%)	25 (64 %)	4 (10%)	0 (0%)	0 (0%)	0 (0%)
Would like to use this tool again	39	9 (23%)	29 (74%)	0 (0%)	1 (3%)	0 (0%)	0 (0%)
Question appropriate for child's age	39	12 (30.8%)	26 (66.7%)	0 (0%)	1 (2.6%)	0 (0%)	1 (3%)

Following minor adjustments, the CBRS was administered to a population of 236 children between the ages of 42 and 66 months of age, in preschool classrooms for four year olds for the purpose of determining psychometric properties. Demographic data were almost complete or complete for age and gender, but for other variables, data were only available for 41 of the 236 parents and teachers.

The gender distribution was 51% male and 49% female. A total of 18 children (8.0%) was 45-50

months old, 109 (48.0%) were 51-56 months old and 100 (44.0%) were 57-66 months old. Age data were missing for 9 children, who were known to be between four and five years old. Children were from the parishes of Kingston (51.2%), St. Andrew (26.8%) and St. Catherine (22.0%) parishes. A large proportion (85.4%) of CBRS assessments occurred in early childhood settings, with only 7.3% in primary school settings and 7.3% in “other” settings, with 'other' being primarily well child clinics at health centres. Approximately 68% of these settings were public and 32% were private. Close to 98 percent (97.5%) of screenings were conducted in urban settings (15.4% of the total sample was considered “inner” urban), while only 2.6% of screening occurring in rural settings.

Data on the number of household resources was collected as a proxy of child risk status. Parents were asked to self-report household resources from a list of 26 resources (e.g., telephone, car, water heater). A little less than twenty percent (19.5%) reported having 5-8 resources, 34.2% reported having 9-12 resources; 29.3% reported having 13-16 resources; 14.6% reported having 17-20 resources, and 2.4% reported having more than 21 household resources.

Data were also collected from a total of 43 participating teachers, between the ages of 27 and 61 years. The majority of those participating were trained teachers (86%) with three teaching assistants (7%) and three others, one principal, one Senior Teacher, and one Assistant Administrator/Supervisor. Thirteen of the teachers (31.7%) had either an Associates or Bachelor's Degree, while 18 others (43.9%) reported having some college coursework. Twenty-five of the teachers (69.4%) reported that most of their college coursework was related working with young children and families. It should be noted that responses to this question were recorded for only 36 out of the 43 teachers.

Twenty-five (59.5%) of the teachers reported working in public early childhood educational institutions, while 17 (40.5%) reported working in private early childhood educational institutions. Only three (7.3%) of teachers had 5 or fewer years of experience, while eight teachers (19.5%) had between six and ten years; ten teachers (24.4%) had between 11 and 15 years; ten teachers had between 16 and 20 years; and only three teachers (7.3%) had over 30 years of experience working with preschool children. Eighteen teachers (43.9%) reported being in their current job for 10 years or less, while 16 teachers (39%) report working in their current job for between 11 and 20 years. Only seven teachers (17%) indicated they had over 20 years of experience in their current job.

The mean number of concerns for children in the normative sample was 2.7, with a standard deviation of ± 3.2 . The cut-off score for the CBRS was set at 6 or more total concerns, representing one standard deviation above the mean. The proportion of children in the normative sample identified for additional support or referral by this cut-off score was 16.5%. Internal consistency was assessed for the CBRS by examining the relation between item scores using correlational analysis and Cronbach's coefficient alpha. The standardized alpha for the CBRS is 0.86, indicating strong internal consistency.

In order to assist with the development of cut-off scores, researchers had intended to collect a known group validity sample of CBRS questionnaires on children who had been previously identified with behaviour disorders by professionals such as teachers or developmental

paediatricians. However, due to limited resources, the collection of this sample was not possible. Researchers had also intended to examine test-retest reliability on the CBRS. However, limitations in terms of time and resources made it impossible to collect test-retest data on both the CBRS and the ELS. The ELS was prioritised over the CBRS for these analyses, given that it was a newly-developed tool.

THE EARLY LEARNING SCALES

The purpose of this component is to identify areas relative to learning in which children need to develop competence in order to be successful at primary level schooling and beyond.

Development

The Early Learning Scales (ELS) were developed in 2012 by a team from the University of Oregon, following a literature review of existing school readiness tools, other assessment measures, existing definitions of school readiness and the expectations for Jamaican children, as determined by the Jamaica Early Childhood Curriculum. Following development, the items were adapted in 2013, after receiving feedback from focus groups with teachers, parents and other key early childhood stakeholders in Jamaica.

The Early Learning Scales, similar to the two earlier questionnaires, are completed by teachers, based on their knowledge of and observation of students in the classroom setting.

The ELS has three parts:

- Approach to Learning
- Early Literacy
- Early Numeracy

Approach to Learning assesses the behavioural and socio-emotional skills that children need to promote learning. Early Literacy and Early Numeracy Skills, as the names suggest identify the literacy and numeracy skills necessary to undertake the learning tasks of the primary environment. There are ten questions in the Approach to Learning and Early Literacy Skills sub-scales and eight in the Early Numeracy Skills sub-scale.

For each question, there are three possible responses:

- **Not Yet:** The child is **not able** to do the skill
- **Sometimes:** The child does the skill on **some** occasions, but is **not consistent**
- **Often/Always:** The child does the skill **consistently** on his/her own

Psychometric Properties

The properties of the ELS were evaluated in two phases, similar to the CBRS. The utility (including cultural sensitivity) was determined to allow for any adjustments prior to piloting for psychometric properties. In the second phase, true psychometric properties were assessed. As before, in the second phase, the mean and standard deviation was used to develop cut-off scores for each of the sub-scales. Cut-off scores were aimed at differentiating children who need additional support prior to or on entry to the primary school setting from those who required no intervention.

As before, procedures ensuring protection of human participants were approved by the University of West Indies and the University of Oregon institutional review boards and were followed in all research phases.

The utility responses for the ELS are shown in Table 3.2, and indicate respondents' reports of acceptability of the instruments and cultural appropriateness. During Phase 1, 49 pre-school teachers completed the ELS on children in their class.

Table 3.2

Summary of Responses to Utility Statements for Early Learning Scales

Early Learning Scales Utilities Domains	Total	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Missing
	N	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Questions are clear and easy to understand	49	15 (31%)	33 (67%)	0 (0%)	1 (2%)	0 (%)	0 (%)
Questions appropriate for child and family's culture	49	12 (25%)	34 (69%)	0 (0%)	3 (6%)	0 (%)	0 (%)
Completing tool provided meaningful Information	48	12 (25%)	31 (65%)	2 (4%)	2 (6%)	0 (%)	1 (2%)
Would like to use this tool again	48	10 (21%)	37 (77%)	1 (2%)	0 (0%)	0 (%)	1 (2%)
Questions appropriate for child's age	47	13 (28%)	33 (70 %)	0 (0%)	0 (0%)	1 (2%)	2 (4%)

Demographic data were almost complete or complete for age and gender, but for other variables, data were only available for 49 of the 236 parents and teachers. The demographic data available

for participants, including children and families and their teachers, was similar to that for the CBRS.

Similar to the CBRS, cutoffs were set at one standard deviation below the mean for each sub-scale of the ELS. The mean and standard deviations, and suggested cutoffs for each of the sub-scales is represented in Table 3.3. Although one standard deviation below the mean in the Early Numeracy sub-scale is 8.4, this number was rounded up to a cut-off of 9 as cutoffs are set as whole numbers, with a score below the cut-off considered to be cause for follow-up. As shown in Table 3.3, 14.0% of the population were below the cut-off score in the Approaches to Learning subscale, 15.3% were below in the Early Literacy area, and 15.7% were below in the Early Numeracy area. Overall, 16.1% of children in the normative sample were below the cut-off score in one or more areas.

Table 3.3
Means, Standard Deviations, Cut-off Scores and Percent Identified by Early Learning Sub-Scales

		Approach to Learning	Early Literacy	Early Numeracy
Number	Valid	236	236	236
	Missing	0	0	0
Mean		13.44	13.97	12.24
Standard Deviation		3.88	5.01	3.84
Cut-off Score		10	9	9
Percent Identified		14.0	15.3	15.7

In order to assess test-retest reliability, teachers were asked to complete all three sub-scales of the ELS at two points in time, separated by two to three weeks. A test-retest sample size of 50 was targeted; the actual sample size was 36. A Pearson Product Correlation was used to analyze test-retest reliability, and results indicate strong significant agreement in all three areas, as shown in Table 3.4.

Table 3.4
Summary of Test-Retest and Inter-Observer Reliability (Pearson Product Correlational Analyses)

Reliability	Approach to Learning		Early Literacy		Early Numeracy	
	N	<i>r</i>	N	<i>r</i>	N	<i>r</i>
Test-retest	36	.85**	36	.75**	36	.70**
Inter-observer	-	-	50	.75**	50	.48**

**Correlation is significant at the .01 level (2-tailed).

Inter-observer reliability was also examined for the Early Literacy and Early Numeracy subscales. The best case scenario for this analysis is to have two persons who are familiar with

the child complete the same questionnaires independently. However, the classrooms in which the research was conducted had only one teacher so this approach was not possible. Instead, both teachers and a researcher, who was a clinical psychologist, completed the sub-scales through observations and interactions with individual children during the same two-week period. For this reason, the Approach to Learning subscale was not included in the inter-observer study, as skills in this subscale, more so than the others, require observation over time by a rater with whom children have an ongoing relationship.

Based on these limitations, it was assumed that inter-observer reliability would not be high in this area. The target number of children for the inter-observer study sample was 50; this goal was met. Inter-observer reliability was measured with Pearson Product Correlations, using total area scores. As illustrated in Table 3.4, inter-observer correlations between total scores differed between the two areas. The Early Literacy subscale had a correlation of .75, which is considered good, while the correlation between total scores for the Early Numeracy area is .48, which is considered weak. Both correlations were significant at the .01 level (2-tailed). Researchers also analyzed the agreement between two observers, a teacher and a researcher, on classification, and found that agreement was strong for both the Early Literacy (.90) and Early Numeracy subscales (.90); 90% of the time observers were in agreement as to whether a child was above or below the cut-off score.

Internal consistency was also examined for all three areas of the ELS using correlational analysis and Cronbach's coefficient alpha. The standardized alpha for the Approaches to Learning (.81), Early Literacy (.89), and Early Numeracy (.87) areas indicated strong internal consistency for all three sub-scales.

Researchers intended to collect a known group validity sample on the ELS for children who had been previously identified with developmental delays by teachers and/or developmental paediatricians. However, due to limited resources, the collection of this sample was not possible.

LIMITATIONS AND FUTURE DIRECTIONS

Researchers who conducted the analysis on psychometric properties for the newly developed ELS acknowledged that this study was conducted within an exceptionally short time frame and with limited resources. The absence of demographic information for a large proportion of the sample of children meant that it was not possible to determine whether the sample was normative. Additionally, the sample was primarily an urban one. Researchers recommended that the tools should be piloted in a normative sample and the validity of the cut-off scores determined.

This pilot in Westmoreland has achieved only the first of the recommendations. The second recommendation of validity testing requires diagnostic assessment of the children identified as having concerns that require further evaluation, as well as a sample of those who were not so identified.

SECTION 4

THE IMPLEMENTATION OF THE PILOT

There were a number of steps in the implementation of the pilot project. First there was selection of the parish for the pilot, and subsequent to this, identification of eligible children. ECC staff were then trained on the use of the instruments (questionnaires) which make up the assessment, so that they could train the staff at schools. Questionnaires were printed, then distributed to and collected from schools. A consultation session was held with staff from schools to receive their feedback and recommendations to improve the process.

This section describes the implementation of the pilot process in detail.

PARISH SELECTION

Westmoreland is a parish that is far removed from access to diagnostic child development and behaviour services, as well as therapeutic and early intervention services. These services are primarily available in the parishes of Kingston and St. Andrew. The parish of Westmoreland was selected for this pilot as these features would allow for the determination of true costs, associated with the implementation of all phases of the Jamaica School Readiness Assessment, throughout all parishes.

TIMING OF PILOT

Given the methodology of administration of the assessment, requiring teachers to complete questionnaires on children at the end of the academic year, the pilot was timed to be conducted exactly one year prior to the time of expected national administration in June 2015. All preparatory work was therefore scheduled to be completed, in order to allow for teacher assessments to be conducted in the last two to three weeks of June 2014.

IDENTIFICATION OF CHILDREN

Development Officers requested Early Childhood Teachers and Practitioners (ECTPs) to identify all children between the ages of 4 years 0 months (48 mths.) and 4 years 11 months (59 mths.) who were attending schools of all types, whether private or public. A total of 2,379 four year old children attending 151 Early Childhood Institutions (ECIs) was identified.

TRAINING OF ECC STAFF

A total of 22 members of ECC staff, comprising Inspectors and Development Officers, was trained on general principles of screening, use of screening and diagnostic tools, as well as on the specific screening tools comprising the Jamaica School Readiness Assessment by Professor Samms-Vaughan. Training took place on May 22, 2014 at the St Ann Early Childhood Resource Centre. Of the 22 staff sensitised

and trained, 12 were selected to train Early Childhood Practitioners (ECPs), based on their usual parish assignments in the parish of Westmoreland or parishes of close proximity.

SENSITISATION AND TRAINING OF EARLY CHILDHOOD PRACTITIONERS

A PowerPoint Presentation was developed by Professor Samms-Vaughan to ensure standardised training of ECPs on the use of the Jamaica School Readiness Assessment by ECPs.

Training was conducted, using the presentation, in 6 groups over two days by the 12 ECC staff members, at the Torrington Early Childhood Development Centre, Torrington, Westmoreland. 264 ECTPs were sensitized and trained over a two day period, May 29 – 30, 2014; 124 on the first day and 140 on the second day.

In addition, ECTPs were trained on the completion of parent consent forms for the inclusion of children in the pilot project and teacher consent forms. Consent forms were considered necessary for the pilot process as the Jamaica School Readiness Assessment is not yet a part of the National Assessment Programme.

The ECTPs trained represented a total of 147 ECIs comprising 114 basic schools, 2 infant schools, 13 infant departments and 18 preparatory schools. Representatives from four ECIs were absent from the first training session, three from basic schools and one from a preparatory school. A training session for this group was subsequently planned and held on June 16, 2014.

DISTRUBUTION AND COLLECTION OF JAMAICA SCHOOL READINESS ASSESSMENT QUESTIONNAIRES

Questionnaires were printed, based on the numbers of children reported, and were packaged for distribution by school at the ECC office. Packages were sent by courier to the Region 4 Office. They were collected from the office by Inspectors and Development Officers on June 2, 2014 and delivered to ECIs subsequently.

Teachers were given two weeks to complete the questionnaires, with collection by Development Officers through ECTPs Cluster Leaders, scheduled for June 12 and 13, 2014. In practice, completion and collection of questionnaires did not occur until June 20, 2014.

FEEDBACK FROM EARLY CHILDHOOD TEACHERS AND PRACTITIONERS

A consultation session was held with a sample of ECTPs who had participated in the pilot on July 3, 2014 at the Torrington Early Childhood Resource Centre. Some 44 ECTP attended, including principals, trained teachers and practitioners. One parent, indicated her desire to be part of the consultation process, when she came to collect her child from school, and was invited to attend.

The consultation session was designed to receive feedback on all aspects of the implementation of the assessment, including the administration of consent forms, the training process, the questionnaires, and the support provided by ECC staff during the implementation.

Parent Consent Process

ECTPs reported that the consent form had adequate detail and was easily understood by them. The majority of parents also understood the consent form and signed to the participation of their children.

Some ECTPs felt that there was inadequate time given to parents to make a decision about consent. When parents did not attend at school, it was time consuming to make telephone calls and visit homes to obtain consent.

Some parents were unable to read and write; in these situations ECTPs offered assistance. Some parents were too busy to attend school to sign the consent form and sent relatives to do so on their behalf. Other parents were concerned that the process would label them 'bad' parents, and were concerned that they would have to assume responsibility for the cost of further intervention for their children. A few parents were sceptical about signing the consent form; one father did not sign the consent form as he already knew his two children were "late learners" and screening was not necessary. Despite this decision, he asked the principal to allow one of his children to repeat the current class the next school year.

Training

The majority of ECTPs stated that the training content and time allocated for the training was adequate. They reported that the facilitators delivered the training in a professional manner, were knowledgeable, presented information clearly, helped them to easily grasp new concepts and were able to answer questions and provide clarification. Training material was appropriate and relevant, comprehensive and easily understood. They also felt that all areas pertinent to the assessment process were addressed. Training sessions were interactive and group activities helped to sharpen their observation and interviewing skills and increase their awareness of jargon they could encounter.

Some practitioners felt that the notice given for the training was inadequate and a few felt that the one day training period was inadequate to practice use of the instruments. .

The Assessment Instruments (Questionnaires)

1. The Eleven Question Screen (EQS)

Most ECTPs did not report any difficulty using this instrument and felt the questions were relevant. They reported that this questionnaire was particularly useful as it made them become more aware and observant of children's development (e.g. hearing, vision, motor skills), as compared to learning.

Only very few practitioners reported concerns. Some felt that questions should have had a third response option of "sometimes" rather than just "yes" or "no", as some children do not show the

problem all the time. Others felt the questions should have been open ended. They were concerned about the reverse coding of Question 5; this was the only question for which a response of "No" indicated concern. Question 9 (Do you think this child has problems doing things for himself/herself?) was felt to be too vague. Some felt that question 7 (Are you concerned about any aspect of this child's behavior?) and question 11 (Are you concerned about any other aspect of this child's learning, development or behavior?) were similar.

2. Child Behaviour Rating Scale (CBRS)

ECTPs reported that the questions were appropriate for the children, and the behaviours frequently identified by them were documented on the instrument. They stated that the instrument helped them to be objective in the rating of the students' behaviours and to have better insight of acceptable and unacceptable behaviours of children. They also reported that had this instrument been introduced long ago, it would have helped them to better manage their teaching /learning environment.

ECTPs felt that there should be an item on the questionnaire to document children's sexualised language and behaviour. One ECTP reported that it had been difficult to determine which response options to use when rating the behaviour of children in her class, and a few others reported needing more clarity and examples on the questionnaire to determine the appropriate options to choose. ECTPs reported that Questions 9 and 11 were most likely to be scored "never/rarely" in this age group.

3. The Early Learning Scales

ECTPs reported that the use of these questionnaires helped them to understand more about age appropriate developmental levels of children. The questionnaires also helped teachers to identify each child's strengths and weaknesses, and more accurately assess readiness skills. Finally, the questionnaires helped teachers to be more aware of the need to establish developmentally appropriate learning environments.

The concerns about these questionnaires were primarily question specific. ECTPs felt that for Early Literacy Question 7 ("Can tell you if a spoken or printed word has the same or different beginning and ending sounds"), most children of this age would not have been introduced to ending sounds. For Early Numeracy Question 2 ("Can identify the following 6 basic geometric shapes e.g. circle, square, rectangle, triangle, diamond, star"), children of this age would not have been taught a diamond as a basic shape, and a heart was probably a better choice. For Early Numeracy Question 5 ("Can count up to 20"), most four year olds had a challenge counting past 14. For Early Numeracy Question 7 ("Can correctly subtract one number from another when both are less than 10"), most four year olds were not introduced to verbal subtraction.

In some situations, children were asked questions to assist completion of the questionnaires. ECPTS reported that when this was done, children's "home language" impacted their level of understanding of the questions asked.

Support Provided by Development Officers and Inspectors

Development Officers and Inspectors were reported to be readily available to ECTPs and worked assiduously to ensure that packages/instruments were distributed in a timely manner. They provided clarity throughout the process, and visits and calls were made to schools experiencing challenges.

Parent Report

The parent who attended the session reported a personal story of her nephew who went through the school system with a learning problem that was not diagnosed until he was ten years old. This she felt could have been addressed if he had the benefit of a screening system such as this.

Overall Comments

The group's consensus was that the pilot of the Jamaica School Readiness Assessment was well organised. Its implementation provided a structured way to help parents and teachers be more aware of children's development, learning and behaviour. The questionnaires helped parents and teachers to understand children's strengths and weaknesses, including those who are gifted and those who have learning difficulties / disabilities and behavioural problems. ECPTs felt that they are more aware of children's performance and could better support the children for the next school term. In fact, some of teachers used the information gained from the assessment to assist their students during the remaining weeks of the school term.

Completing the questionnaires also helped teachers to assess their own strengths and weaknesses and become more aware of the need to enhance their classroom strategy and teaching delivery. ECTPs were concerned that Basic School teaching staff are always blamed for the low readiness skills of children transitioning to primary level schooling. ECPTs stated that the time for completion of questionnaires was too short, particularly for schools with large populations.

Parents were very receptive and happy for the opportunity to have their children participate in the screening process. Most parents felt that the interest now placed on screening of children is good and should have been introduced long ago. Parents stated that they were anxious to receive the results from their children's assessments. They also wanted to know where they could receive further assistance if the child had any serious problems that needed follow up and if so, whether there would be a cost involved.

ECTPs enquired of the action that could be taken if a parent refused to have their child assessed. ECTPs also reported that four years old who were in the first year of Basic School would not have been assessed.

Recommendations

ECTPs made the following recommendations:

1. The media should be used to publicize, heighten awareness of parents and other interest groups on the importance of screening/assessment of children in ECIs.
2. The school's TRN should be used on the form instead of the teachers' TRN.

3. Training of the ECTPs should include practical exercises of interviewing and observation techniques
4. More time should be allocated to complete the screening tools, particularly for schools with large populations.
5. The implementation of the Jamaica School Readiness Assessment should be followed by training workshops with practitioners and parents, led by a Child Development specialist to equip them to meet the needs of children.

DATA ENTRY

The database for capture of the information on the questionnaires was developed by the ECC's IT Manager. Eleven (11) members of ECC's Development Officer and Inspector Corps commenced data entry on Tuesday, July 22, 2014. Data entry occurred during the summer months when school visits for inspection and development functions were at a minimum. ECC staff who completed data entry were selected from Region 1, Kingston and St. Andrew, and Region 6 – St. Catherine, to maintain travel costs at a minimum.

SECTION 5

CHILD OUTCOMES

PARTICIPATION RATES

Of the 2379 four year old children identified, forms were received for 1905 children (80.1%). Forms were complete and there was birth certificate confirmation of age and PATH status availability for 1727 children (72.6% of the total sample) from 138 or 89.6% of the 154 schools or ECIs in Westmoreland. As there would be no eligible children in 5 of the 154 schools, which provide only nursery and/or day care services, the true school participation rate was 92.6%.

Of the 1727 forms received, 65 schools or 47.1% evaluated less than 10 children, 51 schools (37.0%) evaluated 10-19 children, 14 schools (10.1%) evaluated 20-29 children and 8 schools (5.8%) evaluated more than 30 children. Two of these schools evaluated just over 60 children and two over 40 children. Of the 8 schools evaluating the greatest number of children, 5 were basic schools, one was a pre-school and one was an infant school.

SAMPLE DESCRIPTION

Age distribution

Some 1565 of the 1727 children or 90.6% were between the ages of 48 and 59 months. Children who were younger than the specified age included 15 (0.9%) who were between 42 and 47 months. Children who were older than the specified ages included 87 (5.0% of the sample) who were at 60 months (5 years exactly), and 3.0% or 52 between 61 and 65 months. Six (6) children were between 66 and 68 months, one child was 72 months and one child was 89 months.

Overall, 1656 or 95.8% of children in the sample were within the age range or within a month at either end (+/- 1 month). There was no significant difference in gender distribution, school type attended or PATH benefit associated with older or younger children.

For the purposes of accuracy, further age analysis was conducted only with those 1565 children within the age range. The mean age of participating children was 54.5 ± 3.0 months. Girls had a mean age of 54.4 ± 3.0 months and boys a mean age of 54.6 ± 2.9 months. This difference was not statistically significant.

There was a significant age difference by type of school attended at the $p < 0.01$ level. Children attending infant schools (55.5 ± 2.2) and kindergarten and preparatory schools had a higher mean age (55.2 ± 2.9), than those attending basic schools (54.5 ± 3.0) and infant departments (54.4 ± 3.0). Children attending pre-schools had the lowest mean age of 53.8 ± 3.2 months.

Gender

There were 870 males (50.4%) and 857 females (49.6%) in the total sample. When restricted to four year olds only, there were 797 males (50.9%) and 768 females (49.1%). These figures are consistent with the national gender distribution.

School Type

Table 5.1 shows the distribution of early childhood institutions (ECIs) in Westmoreland, and the distribution of the schools participating in the pilot, as well as the number of children in the pilot by school type. The table shows that the majority of all public schools and private kindergarten and preparatory schools participated, but only 7 of 15 private pre-schools (47%) participated.

The 111 basic schools, constituting 80% of schools participating in the pilot, also account for 80% of participating children. Infant schools and departments constituting 7.4% of schools, account for 9.5% of participating four year olds. Kindergarten and Preparatory schools have relatively fewer four year olds, with 7.2% of schools and 5.5% of four year olds.

Table 5.1
Distribution of School Type, Participating Schools and Participating Children

School (ECI) Types	All Schools in Westmoreland		Schools Participating in Pilot		Four Year Olds Participating in Pilot	
	No.	%	No.	%	No.	%
Day Care/Nursery*	5	3.1	-	-	-	-
Basic School	119	74.8	111	80.4	1244	79.5
Infant Department	7	4.4	6	4.4	66	4.2
Infant School	3	1.9	4+	3.0	83	5.3
Kindergarten and Preparatory School	10	6.3	10	7.2	86	5.5
Pre-School	15	9.5	7	5.1	86	5.5
TOTAL	154	100.0	138	100.1	1727	100.0

* No eligible children + One infant school in Hanover close to the border of Westmoreland was inadvertently included

Table 5.2 displays the proportion of four year olds who have access to a trained teacher within their school. Overall, 32.0% of children have access to a trained teacher. All children attending infant schools and the majority of children attending infant departments have access to a trained teacher, but at basic school and private schools, , the proportion with access to a teacher is between a quarter and a third.

Table 5.2**Proportion of Four Year Olds in Schools with a Trained Teacher by School Type**

	School Type		Trained Teachers*		
	No.	%	Yes	No	%
Basic School	1244	79.5	307	876	26.0
Infant Department	66	4.2	50	11	82.0
Infant School	83	5.3	70	0	100.0
Kindergarten and Preparatory School	86	5.5	14	47	23.0
Pre-School	86	5.5	23	53	32.3
TOTAL	1727	100.0	464	987	32.0

* Information on teacher qualification not available for 15% of teachers

Socio-Economic Status

The only measure of socio-economic status collected from school data was a proxy measure, that of whether the child was receiving support through Jamaica's Conditional Cash Transfer Programme, the Programme for Advancement Through Health and Education (PATH Programme). Some 427 children in the total sample (24.2%) were recipients of PATH benefits. When limited to four year olds, 380 (24.3%) were receiving PATH benefits, while 1185 (75.7%) were not. There were no gender differences with regard to receipt of the PATH programme.

CHILD DEVELOPMENT STATUS

Child development status was assessed using a modified Ten Question Screen, known as the Eleven Question Screen (EQS) as described in Section 2. There is also a single general behaviour question and a single general learning question on the EQS. Table 5.3 displays the frequency of developmental concerns observed by teachers. Forty-six (46) four year olds did not have the EQS completed; the analysis presented for the EQS is for 1,519 children.

Teachers reported child behaviour to be the most frequent concern on the EQS, whether these were those perceived to be emanating from the individual child (16.0%) or those related to how the child interacts socially with others (12.4%). Teachers reported comprehension concerns in just under 10% of children and learning concerns in just over 5%. Sensory (hearing and vision) and motor problems (gross and fine) were reported in less than 2% of children in each domain.

The category of "Other" where teachers can report any other concern was at 18.8% of the population. Previous experience with parental completion of this questionnaire has shown similar results, with behaviour being the most common individual concern reported and the "other" category being the most common overall concern. Analysis of the "other" category when completed by parents showed that they typically repeated the individual concerns already documented by the other questions. Further analysis of the "Other" category should be

undertaken to confirm whether the pattern observed on parent completion is similar to that completed by teachers

Table 5.3

Proportion of Four Year Olds for whom Teachers Report Developmental Concerns using the Eleven Question Screen

EQS Questions	Domain	No. of students	%
1. Do you think this child has problems sitting, standing, walking or moving around?	Gross Motor	20	1.3
2. Do you think this child has problems using his hands or fingers to do things? (e.g. holding objects)	Fine Motor	21	1.4
3. Do you think this child has problems seeing?	Vision	26	1.7
4. Do you think this child has problems hearing?	Hearing	12	0.8
5. When you ask this child to do something does he/she understand what you say? *	Comprehension	147	9.7
6. Do you think this child has problems speaking?	Language	67	4.4
7. Are you concerned about any aspect of this child's behaviour?	Behaviour	243	16.0
8. Are you concerned about how this child gets along with other people (adults or children)?	Social Interaction Skills	189	12.4
9. Do you think this child has problems doing things for himself/herself?	Personal Skills	53	3.5
10. Do you think this child has problems learning at school?	Learning	80	5.3
11. Are you concerned about any other aspect of this child's learning, development or behaviour?)	Other	286	18.8

* This question was reverse coded so numbers and percentages represent children for whom teachers have comprehension concerns

Table 5.4 shows that 1,043 children or 68.7% of four year olds were reported to have no developmental concerns; 17.2% or 262 children had a single concern reported, 124 or 8.2% had 2 concerns , 44 or 2.9% had 3 developmental concerns and 27 or 1.8% had 4 developmental concerns reported. A total of 19 or 1.2% of children had between 5 and 8 developmental concerns reported.

Table 5.4 also shows that boys were more likely to have a greater number of concerns reported. Seven boys had more than six concerns, while only one girl fell in this category. These differences were highly statistically significant. There were no significant differences in number of developmental concerns by PATH enrollment.

Table 5.5 indicates child development status by gender. Significant differences between boys and girls, were reported in both gross and fine motor function, behaviour, social interaction skills, personal skills and learning. In all domains, boys were more likely to be reported as

having developmental concerns than girls. The greatest differences reported were in fine motor function, behaviour and social interaction skills. There were no significant gender differences in sensory function (hearing and vision), in comprehension or in language.

Table 5.4
Number of Concerns on EQS by Gender

No. of Concerns Reported	Male		Female		All	
	No.	%	No.	%	No.	%
0	489	63.6	554	73.9	1043	68.7
1	139	18.1	123	16.4	262	17.2
2	83	10.8	41	5.5	124	8.2
3	23	3.0	21	2.8	44	2.9
4	20	2.6	7	0.9	27	1.8
5	8	1.0	3	0.4	11	0.7
6	5	0.7	0	0.0	5	0.3
7	1	0.1	0	0.0	1	0.1
8	1	0.1	1	0.1	2	0.1
9	0	0.1	0	0.0	0	0.0
10	0	0.0	0	0.0	0	0.0
TOTAL	750	100.0	769	100.0	1519	100.0

p < 0.001 (Analysis conducted with categories 6 to 10 combined)

Table 5.5
Child Development Status by Gender using the EQS

EQS Domain	Male		Female		Significance (p value)
	No.	%	No.	%	
Gross Motor	17	2.0	6	0.7	*
Fine Motor	20	2.4	3	0.4	***
Vision	12	1.4	15	1.8	N.S.
Hearing	6	0.7	7	0.8	N.S.
Comprehension	86	10.2	72	8.6	N.S.
Language	46	5.5	31	3.7	N.S.
Behaviour	175	20.8	93	11.1	***
Social Interaction Skills	134	15.9	72	8.6	***
Personal Skills	37	4.4	21	2.5	*
Learning	61	7.3	29	3.5	**
Other	192	22.8	120	14.3	***

* p < 0.05 ** p < 0.01 *** p < 0.001 N.S. Not Significant

Table 5.6 shows that there are few developmental differences across school types. Weak significant differences only occur in the domains of Language, Social Interaction Skills and Learning Concerns. Infant schools have a higher proportion of language and learning concerns, while both infant and basic schools have higher proportions of social interaction skills concerns.

Table 5.6**Child Development Status by School Type using the EQS**

EQS Domain	School Type (%)					All (%)	Significance (p Value)
	Basic School	Infant Dept.	Infant School	KG & Prep	Pre-School		
Gross Motor	1.5	0.0	1.3	1.1	1.2	1.4	N.S.
Fine Motor	1.4	0.0	3.8	1.1	0.0	1.4	N.S.
Vision	1.8	1.5	0.0	1.1	0.0	1.6	N.S.
Hearing	0.7	0.0	1.3	2.1	0.0	0.8	N.S.
Comprehension	10.2	10.4	8.8	2.1	4.7	9.4	N.S.
Language	4.5	3.0	11.3	4.3	1.2	4.6	*
Behaviour	16.6	17.9	18.8	7.4	10.6	16.0	N.S.
Social Interaction Skills	13.3	7.5	13.8	5.3	5.9	12.3	*
Personal Skills	3.7	0.0	3.8	1.1	4.7	3.5	N.S.
Learning	5.8	0.0	8.8	0.0	5.9	5.4	*
Other	18.7	23.9	26.3	12.8	11.8	18.6	N.S.

* p<0.05 N.S. Not significant

There was no significant association with any of the EQS domains and PATH beneficiary status

CHILD BEHAVIOUR STATUS

Child behaviour Status was assessed using the Child Behaviour Rating Scale (CBRS). For each question, one of five responses is possible: Never, Rarely, Sometimes, Usually, Always. For 15 of 17 questions, the absence of the behaviour, a rating of never or rarely, is indicative of a concern (e.g. Completes tasks). For Questions 12 and 13, the presence of the behaviour, a rating of usually or always, is indicative of a concern (e.g. Says things which threaten or hurt other children). Table 5.7 reports on the prevalence of individual behaviour concerns, by gender.

There was no individual behaviour concern that was observed in more than a quarter of children. The most frequently occurring behaviour concerns were those related to performing school tasks: an inability to self-correct errors (24.7%), difficulty focussing (17.0%), inability to undertake two sequential tasks (14.6%), failing to return to complete tasks (13.2%), inability to initiate tasks without prompting (12.9%) and difficulty trying new tasks (12.6%). Behaviours that were related to socio-emotional skills were generally the least frequent: inability to wait for attention (4.1%), failing to get task tools (5.4%), failing to co-operate in groups (6.3%) and threatening peers (6.4%).

Boys were more likely to be reported to have behaviour concerns than girls in all but one area, that of threatening peers. The gender differences were most prominent for school task related behaviours and less prominent for tasks requiring general socio-emotional skills.

Table 5.7

**Prevalence of Individual CBRS Behaviour Concerns
by Gender**

CBRS Behaviour Tasks	Gender (%)		All	Significance (p value)
	Male	Female		
Observes rules	11.2	5.9	8.6	***
Does two sequential tasks	18.3	10.7	14.6	***
Completes tasks	10.9	5.7	8.4	***
Tries new tasks	16.5	8.6	12.6	***
Focusses	20.5	13.4	17.0	***
Starts tasks without a prompt	16.1	9.6	12.9	***
Doesn't rush tasks	11.4	5.9	8.7	***
Gets task tools	6.1	4.4	5.3	N.S.
Self corrects errors	28.7	20.5	24.7	***
Returns to complete tasks	16.7	9.6	13.2	***
Shares with peers	12.0	7.1	9.6	**
Threatens peers	6.8	6.0	6.4	N.S.
Physically hurts peers	9.3	6.0	7.7	*
Co-operates in groups	8.4	4.1	6.3	**
Takes turns	10.5	5.7	8.2	**
Follows teachers instructions, even if task is not liked	8.8	6.0	7.4	*
Waits to get attention	5.2	3.0	4.1	*

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Table 5.8 shows that there are a number of significant differences in reported behaviour concerns by school type, particularly for behaviours related to school tasks. Infant schools and infant departments have the highest proportion of children with school task related problem behaviours, and kindergarten and preparatory school children and pre-school children generally have the lowest proportion of children with problem behaviours. Pre-schools have the greatest proportion of children who have an inability to complete two sequential tasks; this may be explained by their significantly younger cohort.

Infant schools and infant departments also have a greater proportion of children with problem behaviours that require socio-emotional skills, but these did not attain statistical significance.

Table 5.9 shows that children who are beneficiaries of the PATH programme have a higher proportion of only a few of the behaviour concerns on the CBRS. The behaviour concerns are all school task related behaviours, including failing to observe rules, difficulty trying new tasks, rushing tasks and difficulty getting task tools.

Table 5.8**Prevalence of Individual CBRS Behaviour Concerns by School Type**

Behaviour Tasks	School Type (%)					All (%)	Significance (p Value)
	Basic School	Infant Dept.	Infant School	KG & Prep	Pre-School		
1. Observes Rules	8.3	9.2	22.4	3.8	3.8	8.6	***
2. Does two sequential tasks	13.0	26.2	25.0	2.5	31.3	14.6	***
3. Completes tasks	8.2	14.8	18.4	2.5	2.5	8.4	***
4. Tries new tasks	12.3	19.7	27.6	1.3	5.0	12.6	***
5. Focusses	17.3	23.0	25.0	7.6	8.8	17.0	**
6. Starts tasks without a prompt	13.0	16.4	23.7	1.3	8.8	12.9	**
7. Doesn't rush tasks	8.0	19.7	21.1	5.1	2.5	8.7	***
8. Gets task tools	5.1	6.6	13.2	1.3	2.5	5.3	**
9. Self corrects errors	25.4	31.1	35.5	10.1	12.5	24.7	***
10. Returns to complete tasks	13.7	18.0	13.2	6.3	8.8	13.2	N.S.
11. Shares with peers	9.3	6.6	15.8	5.1	13.8	9.6	N.S.
12. Threatens peers	6.1	6.6	13.2	2.5	8.8	6.4	N.S.
13. Physically hurts peers	7.4	4.9	14.3	3.8	11.3	7.7	N.S.
14. Co-operates in groups	6.6	4.9	6.6	2.5	5.0	6.3	N.S.
15. Takes turns	8.1	11.5	9.2	6.3	7.5	8.2	N.S.
16. Follows teachers instructions, even if task is not liked	6.9	4.9	13.2	11.4	7.5	7.4	N.S.
17. Waits to get attention	4.1	4.9	7.9	1.3	2.5	4.1	N.S.

** p<0.01 *** p<0.001 N.S. Not significant

Table 5.9**Prevalence of Individual CBRS Behaviour Concerns by PATH Beneficiary Status**

Behaviour Tasks	PATH Recipient (%)		All	Significance (p value)
	Yes	No		
Observes rules	11.3	7.7	8.6	*
Does two sequential tasks	16.9	13.8	14.6	N.S.
Completes tasks	10.2	7.8	8.4	N.S.
Tries new tasks	18.5	10.7	12.6	***
Focusses	18.5	16.5	17.0	N.S.
Starts tasks without a prompt	14.6	12.3	12.9	N.S.
Doesn't rush tasks	10.8	8.0	8.7	N.S.
Gets task tools	8.8	4.1	5.3	***
Self corrects errors	31.2	22.5	24.7	**
Returns to complete tasks	15.5	12.5	13.2	N.S.
Shares with peers	10.5	9.3	9.6	N.S.
Threatens peers	8.6	5.7	6.4	N.S.
Physically hurts peers	8.8	7.3	7.7	N.S.
Co-operates in groups	7.5	5.9	6.3	N.S.
Takes turns	9.9	7.6	8.2	N.S.
Follows teachers instructions, even if task is not liked	8.0	7.2	7.4	N.S.
Waits to get attention	4.7	3.9	4.1	N.S.

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

The distribution of total behaviour concerns is indicated in Table 5.10. For just over a half of children (53.2%), there are no behaviour concerns. Another 22.5% have only one or two behaviour concerns and 10.8% have between three and four behaviour concerns.

Using this instrument, a child is considered to have significant behaviour problems if there are six or more concerns. Overall, 1333 or 89.8% of children have no significant behaviour problems while 151 or 10.2% have significant behaviour problems (Table 5.10).

Table 5.10

Distribution of Total Behaviour Concerns

Behaviour Concerns	No.	%
0	790	53.2
1	218	14.7
2	116	7.8
3	92	6.2
4	69	4.6
5	48	3.2
6	22	1.5
7	30	2.0
8	29	2.0
9	18	1.2
10	17	1.1
11	12	0.8
12	6	0.4
13	6	0.4
14-17	11	0.7
TOTAL	1484	100.0

Table 5.11, following the pattern of the earlier tables of individual behaviour problems, indicates that boys, children attending infant schools and infant departments, and to a lesser extent, those who are PATH beneficiaries have a higher proportion of behaviour problems reported by their teachers.

Table 5.11

**Behaviour Problems by Gender, School Type
and PATH Beneficiary Status**

	Significant Behaviour Problems		Significance (p value)
	No.	%	
ALL	151	10.2	
Gender			
Male	103	13.7	***
Female	48	6.6	
School Type			
Basic School	120	10.1	**
Infant Department	9	14.8	
Infant School	16	21.1	
Kindergarten/Prep School	2	2.5	
Pre-School	4	5.0	
PATH Beneficiary			
Yes	50	13.8	**
No	101	9.0	

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

CHILD ACADEMIC SKILLS

The academic skills assessment has three sub components: Approaches to Learning, Early Literacy and Early Numeracy.

Approach to Learning

The Approach to Learning questionnaire assesses the behaviours necessary to promote learning. This questionnaire was completed for 1,529 children; 36 children did not have the questionnaire completed. There are three responses for each of the 10 items: Not Yet, Sometimes, Often/Always. Table 5.12 reports on four year old Jamaican children's approach to learning.

More than 95% of children show interest in and enjoy class activities, separate from their parents and transition to activities easily sometimes or always. More than 90% use a variety of ways to learn, pay attention during group activity, ask for help, use different ways to solve problems and express feelings appropriately sometimes or always. The most frequent learning behaviour challenges were children starting activities themselves (17.1%) and being curious (14.1%).

Table 5.12**Prevalence of Individual Approach to Learning Concerns**

Approach to Learning Tasks	Not Yet (%)	Sometimes (%)	Often/ Always (%)
1. Interested in and enjoys class activities	2.9	39.4	57.6
2. Uses variety of ways to learn	9.9	49.5	40.6
3. Pays attention during group activity	6.0	47.3	46.7
4. Knows when and how to ask for help	6.1	38.9	54.9
5. Starts activities him/herself	17.1	48.3	34.5
6. Curious, wants to learn new things	14.1	45.2	40.7
7. Separates from parents easily	2.2	16.3	81.6
8. Uses different ways to solve problems	9.2	58.9	31.9
9. Expresses feelings appropriately	8.8	44.0	47.3
10. Transitions activities easily	3.1	28.2	68.7

Table 5.13 shows that boys are generally more likely not to have the required approach to learning, as indicated by the proportion that do not yet demonstrate behaviours conducive to learning. The second analysis (Significance 2, data not shown) also indicates that a higher proportion of boys report having these behaviours "Sometimes" and a lower proportion "Often/Always". All further analysis was undertaken with the two categories combined.

Table 5.14 shows that more children attending infant schools and departments do not have behaviours conducive to learning. Kindergarten and Preparatory school children have the lowest proportion of children not yet having appropriate learning behaviours. Pre-school and basic school children had similar proportions. All differences were statistically significant, except for using a variety of ways to solve problems and separating from parents.

Table 5.13**Individual Approach to Learning Concerns(Children Scoring Not Yet) by Gender**

Approach to Learning Tasks	Male (%)	Female (%)	All (%)	Significance (1)	Significance (2)
1. Interested in and enjoys class activities	2.5	3.3	2.9	N.S.	***
2. Uses variety of ways to learn	12.7	6.9	9.9	***	***
3. Pays attention during group activity	7.3	4.7	6.0	*	***
4. Knows when and how to ask for help	7.9	4.3	6.1	**	***
5. Starts activities him/herself	22.6	11.5	17.1	***	***
6. Curious, wants to learn new things	17.1	10.9	14.1	**	***
7. Separates from parents easily	2.4	1.9	2.2	N.S.	N.S.
8. Uses different ways to solve problems	11.2	7.2	9.2	**	***
9. Expresses feelings appropriately	10.0	7.5	8.8	N.S.	**
10. Transitions activities easily	4.4	1.9	3.1	**	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Significance (1) compares Not Yet category a combined Sometimes and Often/Always .

Significance (2) compares Not Yet with the 2 other categories

Table 5.14**Individual Approach to Learning Concerns (Children Scoring Not Yet) by School Type**

Approach to Learning Tasks	School Type (%)					All (%)	Significance (p Value)
	Basic School	Infant Dept.	Infant School	KG & Prep	Pre-School		
1. Interested in / enjoys class activities	2.2	6.1	16.9	0.0	0.0	2.9	***
2. Uses variety of ways to learn	9.6	15.2	21.7	1.2	6.1	9.9	***
3. Pays attention during group activity	4.4	16.7	27.7	1.2	4.9	6.0	***
4. Knows when /how to ask for help	5.6	18.2	10.8	0.0	6.1	6.1	***
5. Starts activities him/herself	16.4	22.7	36.1	4.9	17.1	17.1	***
6. Curious, wants to learn new things	13.1	18.2	38.6	7.4	7.3	14.1	***
7. Separates from parents easily	1.9	3.0	6.0	1.2	2.4	2.2	N.S.
8. Uses different ways to solve problems	9.9	9.1	6.0	3.7	7.3	9.2	N.S.
9. Expresses feelings appropriately	8.2	16.7	14.5	1.2	12.2	8.8	**
10. Transitions activities easily	2.1	4.5	15.7	0.0	8.5	3.1	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Table 5.15 shows that among children who are beneficiaries of the PATH programme, there is a higher proportion of absence of behaviours supportive of learning. The greatest differences between children who were PATH beneficiaries and non-beneficiaries were in using a variety of ways to learn and initiating activities. For two behaviours, however, PATH beneficiary children had a lower proportion of absence of behaviours conducive to learning, and were therefore more likely to be competent than their peers: paying attention during group activity and transitioning to activities easily.

There were no significant differences between PATH beneficiaries and their peers in behaviours of showing interest in and enjoying activities, separating from parents easily and expressing feelings appropriately, though PATH beneficiaries also had higher proportions of absence of these behaviours.

Table 5.15**Individual Approach to Learning Concerns (Children Scoring Not Yet) by
PATH Beneficiary Status**

Approach to Learning Tasks	Yes (%)	No (%)	All (%)	Significance
1. Interested in and enjoys class activities	4.6	2.4	2.9	N.S.
2. Uses variety of ways to learn	14.0	8.5	9.9	***
3. Pays attention during group activity	5.1	6.3	6.0	*
4. Knows when and how to ask for help	8.6	5.4	6.1	**
5. Starts activities him/herself	21.0	15.9	17.1	***
6. Curious, wants to learn new things	16.2	13.4	14.1	**
7. Separates from parents easily	2.7	2.0	2.2	N.S.
8. Uses different ways to solve problems	11.9	8.4	9.2	**
9. Expresses feelings appropriately	11.9	7.8	8.8	N.S.
10. Transitions activities easily	2.2	3.5	3.1	**

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

On this instrument, a problem in Approach to Learning is identified not from individual items, but from a summary score. "Not Yet" is scored 0, "Sometimes" is scored 1 and "Often/Always" is scored 2. A total score of 9 or less is indicative of a significant problem.

The mean score for Jamaican four year olds is 14.3 \pm 3.8. The 10th percentile is 9, the 50th is 15 and the 90th is 19. Of 1529 four year olds evaluated, 178 or 11.6% score 9 or below and are classified as having a significant problem in Approach to Learning. (Table 5.16)

Table 5.16 also indicates that boys have significantly more problems in approach to learning than girls and that children in infant schools and infant departments have significantly more approach to learning problems than their peers attending other schools. Though PATH beneficiary children have a higher proportion of problems in approach to learning, this difference does not attain statistical significance.

Table 5.16**Approach to Learning Problems by Gender, School Type
and PATH Beneficiary Status**

	Significant Approach to Learning Problems		Significance (p value)
	No.	%	
ALL	178	11.6	
Gender			
Male	124	15.9	***
Female	54	7.2	
School Type			
Basic School	131	10.8	***
Infant Department	12	18.2	
Infant School	27	32.5	
Kindergarten/Prep School	1	1.2	
Pre-School	7	8.5	
PATH Beneficiary			
Yes	51	11.0	N.S.
No	127	13.7	

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Early Literacy Skills

The Early Literacy Skills questionnaire consists of ten questions that assess the presence of tasks that are important to ensure reading success at a later stage. This questionnaire was completed for 1,529 children; 36 children did not have the questionnaire completed. As with the Approach to Learning questionnaire, there are three responses for each of the 10 items: Not Yet, Sometimes, Often/Always. Table 5.17 reports on four year old Jamaican children's early literacy skills.

More than 90% of children know how to use a book, can follow a story read to a group and can recognise their name in print. More than 80% of children can use symbols to represent words, identify ten letters and tell a story in sequence. The literacy tasks that were most challenging for four year olds were accomplished by approximately two-thirds of children, and were those of spelling three letter words, identifying sounds in a three letter word and identifying beginning and ending sounds as the same or different.

Table 5.17**Prevalence of Individual Early Literacy Tasks**

Early Literacy Tasks	Not Yet (%)	Sometimes (%)	Often/ Always (%)
1. Knows how to use a book	5.7	32.2	62.1
2. Follows story read to a group	3.3	43.0	53.8
3. Uses symbols to represent words	10.7	33.4	55.9
4. Recognises name in print	6.0	11.4	82.5
5. Identifies ten letters	15.2	26.9	57.9
6. Knows five letter sounds	24.6	39.2	36.2
7. Identifies beginning and ending sounds of 3 letter words as same or different	36.8	39.1	24.7
8. Identifies sounds in a three letter word	39.0	37.1	23.9
9. Can tell a story in sequence	18.1	44.9	37.0
10. Can spell three letter words	35.3	36.4	28.3

Table 5.18 shows that boys are more likely not to have accomplished the individual early literacy tasks than girls. with the exception of following a story read to a group. In the first column reporting on significance, analysis is conducted comparing "Not Yet" responses to a combined "Sometimes" and Often/Always" category; in the second, analysis is conducted with the categories separated. The second analysis (Significance 2, data not shown) indicates that a higher proportion of boys report having these behaviours "Sometimes" and a lower proportion "Often/Always". All further analysis was undertaken with the two categories combined.

Table 5.18**Early Literacy Task Concerns (Children Scoring Not Yet) by Gender**

Early Literacy Tasks	Male (%)	Female (%)	All (%)	Significance (1)	Significance (2)
1. Knows how to use a book	7.3	4.0	5.7	**	***
2. Follows story read to a group	3.7	2.8	3.3	N.S.	***
3. Uses symbols to represent words	13.5	7.9	10.7	***	***
4. Recognises name in print	9.0	2.9	6.0	***	***
5. Identifies ten letters	18.2	12.0	15.2	**	***
6. Knows five letter sounds	27.7	21.4	24.6	**	***
7. Identifies beginning and ending sounds of 3 letter words as same or different	40.2	33.4	36.8	**	**
8. Identifies sounds in a three letter word	43.3	34.4	39.0	***	***
9. Can tell a story in sequence	20.5	15.6	18.1	*	**
10. Can spell three letter words	39.2	31.1	35.3	**	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Significance (1) compares Not Yet category a combined Sometimes and Often/Always .

Significance (2) compares Not Yet with the 2 other categories

Table 5.19 shows that more children attending infant schools and departments have not yet accomplished early literacy tasks. when compared with their peers attending basic schools and private kindergarten and preparatory schools and pre-schools.

Table 5.19

Individual Early Literacy Task Concerns (Children Scoring Not Yet) by School Type

Early Literacy Tasks	School Type (%)					All (%)	Significance (p Value)
	Basic School	Infant Dept.	Infant School	KG & Prep	Pre-School		
1. Knows how to use a book	5.9	4.5	14.5	0.0	0.0	5.7	***
2. Follows story read to a group	2.5	4.5	16.9	2.5	1.2	3.3	***
3. Uses symbols to represent words	11.5	9.1	18.1	0.0	3.7	10.7	**
4. Recognises name in print	5.9	10.6	13.3	0.0	2.4	6.0	**
5. Identifies ten letters	15.7	19.7	27.7	1.2	4.9	15.2	***
6. Knows five letter sounds	25.1	37.9	37.3	6.2	11.0	24.6	***
7. Identifies beginning and ending sounds of 3 letter words as same or different	39.1	40.9	43.4	12.5	15.9	36.8	***
8. Identifies sounds in a three letter word	41.8	40.9	47.0	11.1	14.6	39.0	***
9. Can tell a story in sequence	18.7	21.2	27.7	4.9	11.0	18.1	**
10. Can spell three letter words	36.1	47.0	51.8	18.5	13.4	35.3	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Table 5.20 shows that among children who are beneficiaries of the PATH programme, there is a higher proportion that have not accomplished all the early literacy tasks. However only some of these differences attained statistical significance. The tasks include those of knowing how to use a book, and the more challenging tasks for children of this age of identifying letters, knowing letter sounds and simple spelling. There were no differences between PATH beneficiaries and their peers in following a story read to a group, recognising his/her own name in print and using symbols to represent words.

Table 5.20

**Individual Early Literacy Task Concerns (Children Scoring Not Yet)
by PATH Beneficiary Status**

Early Literacy Tasks	Yes (%)	No (%)	All (%)	Significance
1. Knows how to use a book	8.6	4.7	5.7	**
2. Follows story read to a group	4.6	2.8	3.3	N.S.
3. Uses symbols to represent words	11.9	10.4	10.7	N.S.
4. Recognises name in print	8.1	5.4	6.0	N.S.
5. Identifies ten letters	19.7	13.7	15.2	**
6. Knows five letter sounds	31.3	22.5	24.6	**
7. Identifies beginning and ending sounds of 3 letter words as same or different	42.9	34.8	36.8	**
8. Identifies sounds in a three letter word	45.8	36.8	39.0	**
9. Can tell a story in sequence	22.9	16.6	18.1	**
10. Can spell three letter words	45.8	31.9	35.3	***

** p<0.01 *** p<0.001 N.S. Not significant

As with the Approach to Learning questionnaire, an early literacy problem is identified not from individual items, but from a summary score. "Not Yet" is scored 0, "Sometimes" is scored 1 and "Often/Always" is scored 2. A total score of 8 or less is indicative of a significant problem.

The mean score for Jamaican four year olds is 12.7 \pm 4.8. The 10th percentile is 6, the 50th is 13 and the 90th is 19. Of 1529 four year olds evaluated, 301 or 19.7% score 8 or below and are classified as having a significant Early Literacy Problem (Table 5.21)

Table 5.21 also indicates that boys have significantly more early literacy problems than girls and that children attending infant schools and infant departments have significantly more early literacy problems than their peers. PATH beneficiary children also have a higher proportion of early literacy problems.

Table 5.21

**Early Literacy Problems by Gender, School Type
and PATH Beneficiary Status**

	Significant Early Literacy Problems		Significance (p value)
	No.	%	
ALL	301	19.7	
Gender			
Male	183	23.5	***
Female	118	15.8	
School Type			
Basic School	250	20.5	***
Infant Department	16	24.2	
Infant School	30	36.1	
Kindergarten/Prep School	0	0.0	
Pre-School	5	6.1	
PATH Beneficiary			
Yes	94	25.3	**
No	207	17.9	

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Early Numeracy Skills

The Early Numeracy Skills questionnaire consists of eight questions that assess the presence of tasks that are important to ensure numeracy success at a later stage. This questionnaire was completed for 1,529 children; 36 children did not have the questionnaire completed. As with the Approach to Learning and the Early Literacy Skills questionnaires, there are three responses for each of the 8 items: Not Yet, Sometimes, Often/Always. Table 5.22 reports on four year old Jamaican children's early numeracy skills.

Of the early numeracy tasks four year olds were most competent at identifying the bigger and smaller of two objects and counting five objects, with 95% accomplishing this task sometimes or often. The numeracy tasks that were most challenging for four year olds were counting to 20, and adding and subtracting numbers less than ten. Approximately three quarters of children accomplished these tasks sometimes to often.

Table 5.22**Prevalence of Individual Early Numeracy Tasks**

Early Numeracy Tasks	Not Yet (%)	Sometimes (%)	Often/ Always (%)
1.Counts 5 objects	3.8	14.9	81.3
2. Identifies 6 shapes	8.5	49.4	42.1
3. Identifies bigger and smaller of 2 objects	1.8	9.4	88.8
4. Identifies numbers 1 to 10	16.8	35.9	47.3
5. Can count to 20	24.7	33.2	42.1
6. Identifies less and more	6.5	21.7	71.7
7. Can verbally subtract 2 numbers less than 10	26.7	27.1	46.2
8. Can verbally add 2 numbers less than 10	23.1	28.2	48.7

Table 5.23 shows that boys are more likely not to have accomplished the individual early numeracy tasks than girls. In the first column reporting on significance, analysis is conducted comparing "Not Yet" responses to a combined "Sometimes" and Often/Always" category; in the second, analysis is conducted with the categories separated. The first analysis shows that statistical significance was only attained for tasks of identifying numbers 1 to 10, and subtracting and adding numbers less than 10. The second analysis (Significance 2, data not shown) indicates that a higher proportion of boys report having these behaviours "Sometimes" and a lower proportion "Often/Always". All further analysis was undertaken with the two categories combined.

Table 5.23**Early Numeracy Task Concerns (Children Scoring Not Yet) by Gender**

Early Numeracy Tasks	Male (%)	Female (%)	All (%)	Significance (1)	Significance (2)
1.Counts 5 objects	4.4	3.2	3.8	N.S.	*
2. Identifies 6 shapes	8.5	8.5	8.5	N.S.	*
3. Identifies bigger and smaller of 2 objects	2.4	1.2	1.8	N.S.	N.S.
4. Identifies numbers 1 to 10	19.5	14.0	16.8	**	**
5. Can count to 20	25.4	24.0	24.7	N.S.	**
6. Identifies less and more	6.9	6.1	6.5	N.S.	***
7. Can verbally subtract 2 numbers less than 10	30.8	22.4	26.7	***	***
8. Can verbally add 2 numbers less than 10	27.3	18.7	23.1	***	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Significance (1) compares Not Yet category a combined Sometimes and Often/Always .

Significance (2) compares Not Yet with the 2 other categories

Table 5.24 shows that more children attending infant schools and departments have not yet accomplished early numeracy tasks. when compared with their peers attending basic schools and private kindergarten and preparatory schools and pre-schools. The proportion of pre-school children having early numeracy concerns is most prominent for the more challenging tasks of counting to 20 and verbally subtracting or adding digits less than ten.

Table 5.24

Individual Early Numeracy Task Concerns (Children Scoring Not Yet) by School Type

Early Numeracy Tasks	School Type (%)					All (%)	Significance (p Value)
	Basic School	Infant Dept.	Infant School	KG & Prep	Pre-School		
1.Counts 5 objects	3.9	3.0	6.0	0.0	3.7	3.8	N.S.
2. Identifies 6 shapes	8.7	13.6	12.0	2.5	3.7	8.5	*
3. Identifies bigger and smaller of 2 objects	1.6	6.1	3.6	0.0	1.2	1.8	*
4. Identifies numbers 1 to 10	17.7	24.2	19.3	2.5	8.5	16.8	**
5. Can count to 20	26.8	25.8	27.7	1.2	13.4	24.7	**
6. Identifies less and more	6.3	7.6	13.3	2.5	6.0	6.5	N.S.
7. Can verbally subtract 2 numbers less than 10	27.2	31.8	30.1	16.0	22.0	26.7	N.S.
8. Can verbally add 2 numbers less than 10	23.6	34.8	30.1	2.5	19.5	23.1	***

* p<0.05 ** p<0.01 *** p<0.001 N.S. Not significant

Table 5.25 shows that among children who are beneficiaries of the PATH programme, there is a higher proportion that have not accomplished a number of early literacy tasks. However, for only three of the tasks was weak statistical significance attained: identifying numbers 1 to 10, counting to 20 and verbally adding two numbers less than ten.

Table 5.25

Individual Early Numeracy Task Concerns (Children Scoring Not Yet) by PATH Beneficiary Status

Early Numeracy Tasks	Yes (%)	No (%)	All (%)	Significance
1.Counts 5 objects	5.4	3.3	3.8	N.S.
2. Identifies 6 shapes	10.2	7.9	8.5	N.S.
3. Identifies bigger and smaller of 2 objects	1.9	1.8	1.8	N.S.
4. Identifies numbers 1 to 10	22.1	15.1	16.8	**
5. Can count to 20	30.5	22.9	24.7	**
6. Identifies less and more	8.1	6.0	6.5	N.S.
7. Can verbally subtract 2 numbers less than 10	30.2	25.6	26.7	N.S.
8. Can verbally add 2 numbers less than 10	27.0	21.8	23.1	*

** p<0.01 *** p<0.001 N.S. Not significant

As with the Approach to Learning and Early Literacy Skills questionnaires, an early numeracy problem is identified not from individual items, but from a summary score. "Not Yet" is scored 0, "Sometimes" is scored 1 and "Often/Always" is scored 2. A total score of 8 or less is indicative of a significant problem.

The mean score for Jamaican four year olds is 11.6 ± 3.6 . The 10th percentile is 6, the 50th is 12 and the 90th is 16. Of 1529 four year olds evaluated, 294 or 19.2% score 8 or below and are classified as having a significant Early Numeracy Problem (Table 5.26)

Table 5.26 also indicates that boys have significantly more early numeracy problems than girls and that children attending infant schools and infant departments have significantly more early numeracy problems than their peers. PATH beneficiary children also have a higher proportion of early numeracy problems.

Table 5.26

**Early Numeracy Problems by Gender, School Type
and PATH Beneficiary Status**

	Significant Early Numeracy Problems		Significance (p value)
	No.	%	
ALL	294	19.2	
Gender			
Male	185	23.5	***
Female	109	15.8	
School Type			
Basic School	247	20.5	***
Infant Department	20	30.3	
Infant School	21	25.3	
Kindergarten/Prep School	0	0.0	
Pre-School	6	7.3	
PATH Beneficiary			
Yes	94	24.0	**
No	207	17.7	

** p<0.01 *** p<0.001 N.S. Not significant

Table 5.27 summarises the prevalence of all of the individual problems identified by the domain specific questionnaires of the Jamaica School Readiness Assessment. Developmental Problems are the most common problems identified, with just under a third of children affected. Literacy and Numeracy problems occur in just under a fifth of the child population and behaviour problems occur in 10%.

Table 5.27**Summary of Readiness Problems and Associations**

Readiness Domain	No. %		Gender	School Type	PATH Status
	No.	%			
Any named Developmental Problem	476	31.3	Variable	* (Some)	N.S.
Behaviour Problem	151	10.2	***	**	**
Approach to Learning Problem	178	11.6	***	***	N.S.
Early Literacy Problem	301	19.7	***	***	**
Early Numeracy Problem	294	19.2	***	***	**

School Type and Developmental Problems: * for Language, Social Interaction, Learning only.

Gender and Developmental Problems: *** Fine Motor, Behavioural, Social Interaction only

** Learning only * Gross Motor, Personal-Social only

Table 5.27 also shows that gender and school type are both strongly associated with behaviour problems and the early learning scales, but either weakly or not associated with named developmental problems. PATH status was moderately associated with behaviour, early literacy and numeracy, but not developmental problems or Approach to Learning.

A total of 1433 children (91.6%) had all five questionnaires completed. Of these, some 770 children (53.7%) of the population have none of the five problems evaluated by the complete readiness evaluation, 338 (23.6%) have one identified problem, 146 (10.2%) have two identified problems, 81 (5.7%) have three identified problems, and 48 (3.3%) and 50 (3.5%) have four and five identified problems respectively. The distribution of identified problems is shown in Table 5.28. When children have only a single identified problem, it is most frequently developmental in nature. When children have two or three identified problems, the most frequent are developmental, literacy and numeracy.

Table 5.28**Distribution of Type of Readiness Problem by Number of Problems**

No. of Problems	Type of Readiness Problem					TOTAL	
	Development	Behaviour	Approach to Learning	Early Literacy	Early Numeracy	Total Responses	Total Four Year Olds
1	227	10	18	39	44	338	338
2	86	28	21	81	76	292	146
3	55	24	33	68	63	243	81
4	34	34	38	44	42	192	48
5	50	50	50	50	50	250	50

Table 5.29 indicates that literacy and numeracy problems often occur together. While just over 6% of children have either a numeracy or a literacy problem, 13% have both.

Table 5.29

Coexistence of Early Literacy and Early Numeracy Problems

Type of Problem	Number	Percent (%)
No Literacy or Numeracy Problem	1135	75.4
Literacy Problem Only	100	6.5
Numeracy Problem Only	93	6.1
Literacy and Numeracy Problems	201	13.1

p<0.001

Table 5.30 shows that regardless of whether behaviour problems are identified using the CBRS or the Approaches to Learning questionnaire, the proportion of children with behaviour problems in the absence of learning problems is quite low. The prevalence of behaviour problems in association with either literacy or numeracy problems is between 13 and 18%. However, when children have both literacy and numeracy problems, the prevalence of behaviour problems related to learning is just over 40% and the prevalence of a wider range of behaviour problems is just over 50%.

Table 5.30

Coexistence of Behaviour Problems with Literacy and Numeracy Problems

Type of Problem	Approaches to Learning Behaviour Problem			CBRS Behaviour Problem		
	Yes	No	%	Yes	No	%
No Literacy or Numeracy Problem	45	1135	4.0	37	1046	3.4
Literacy Problem Only	18	100	18.0	15	80	15.8
Numeracy Problem Only	12	93	12.9	16	74	17.8
Literacy and Numeracy Problems	103	201	51.2	82	108	43.2
ALL	178	1529	11.6	150	1308	10.3

p<0.001

p<0.001

SECTION 6

CONCLUSIONS AND NEXT STEPS

Readiness assessments of pre-school children are now quite common in high income countries, primarily for the purpose of identifying children who may have developmental delays and need additional health or educational services. Fewer assessments are conducted for monitoring and evaluation of the teaching environment.

In the development of its National Strategic Plan for ECD, the ECC included strategic objectives to identify children at risk of developmental and behavioural disorders and to provide national data on academic performance for children at four years old, for the purpose of evidenced based planning.

Instruments were developed and/or adapted to be culturally relevant for use in Jamaica. In recognition of the modern, broader concept of school readiness, the instruments measured developmental status, behaviour and early academic skills. Prior to national rollout, a pilot in one of Jamaica's fourteen parishes was thought important, in order to inform the national implementation process. Piloting of the process of administration of these teacher-completed questionnaires was purposely completed in a rural Jamaican parish, where early intervention services are limited, in order to pilot the process and obtain data in the most challenging situation possible.

The pilot process had high school participation rates generally, with very high participation rates among government infant schools and departments, and somewhat lower rates among private schools. There was also high child participation rates. These participation rates indirectly reflected teacher and parent support for a national assessment at pre-school. This support was confirmed directly during a teacher feedback session. The added burden of completion of relatively long forms for each child was not a main concern for teachers. Despite the short training period, a large number of forms was adequately completed. A longer training period, however, might have reduced the proportion of incomplete forms and also the proportion of children who were outside the age range (9.4%). The inclusion of older children (8.5%) was much greater than that of younger children (0.9%); the oldest child was seven years. One reason for the greater proportion of older children is that teachers might have thought that by participation, these children who may have learning or other challenges would be identified to receive appropriate intervention and service provision.

At feedback, many concerns by ECPs about specific questions on the instrument were resolved by discussion; others could have been addressed by a change or inclusion of additional wording to aid clarity. The addition of a question on sexualised behaviour, however, should be considered.

Additional considerations identified by teachers and ECPs were those very few children for whom there were teacher concerns but whose parents refused participation and exclusion of children who were four years old and who were not in the typical four year old class. All four year olds should have been evaluated.

Individual items on the behaviour and early learning questionnaires, while not indicative of significant behaviour or learning problems identified the main strengths and challenges of four year old Jamaican children in these areas. This information on teacher's assessment of pre-school children's performance has not previously been available on this scale.

The single commonest problem was a developmental problem occurring in just under a third of children. However, the most common developmental problems identified were in the domains of behaviour and social interaction skills. Behaviour problems were least common, affecting just over 10% and numeracy and literacy problems affect just under a fifth each.

Literacy and numeracy problems more often co-existed than occurred independently. Behaviour problems also often co-exist with literacy and numeracy problems.

Overall, 46.3% of children were identified as having a developmental, behavioural or learning (academic) problem. Of these, the single largest group, accounting for a third of this population were children with a single developmental concern on the EQS.

Boys and children from lower socio-economic groups, as measured by PATH beneficiary status, had a greater likelihood of behavioural, early numeracy and early literacy problems. This is in keeping with the international literature. Boys also had a greater likelihood of developmental problems. Children attending infant schools, and to a somewhat lesser extent, those attending infant departments had a greater likelihood of some developmental problems, behaviour problems and early literacy and numeracy problems than their peers at community basic schools. Children attending private schools, where there is a low prevalence of trained teachers, have the lowest rates of behaviour and learning problems. Infant departments and infant schools have the greatest proportion of trained teachers, but these schools, for which parents do not pay fees, are also known to be overcrowded as parents do not pay fees. Another possible explanation for the relatively high rates of problems identified among children attending infant schools and departments is that the trained teacher can better identify children with behaviour or learning problems. This would mean, however, that the proportion of children identified as needing further evaluation would be even higher than the 46.3% identified. This needs further investigation.

The large proportion of children identified as needing further evaluation would overwhelm the diagnostic physical and human resource capabilities of Jamaica. The results from this first phase support the original intention for a second screening phase prior to the diagnostic phase. This would be done using a more detailed screening tool, the Jamaican Ages and Stages Questionnaire, administered by development officers in the presence of parents, at Resource Centres.

It is important to recall that the tools used are screening tools and their validation against diagnostic tools is necessary prior to national use. Validation would determine whether the cut points identified are accurate. The cut-points, calculated by the mean minus one standard deviation, in this larger sample, would be 11 for Approaches to Learning, and 8 for the Early Literacy and Early Numeracy Scales. Validation may also assist in explaining the associations

with school type and the high proportion of children identified as having a developmental concern.

MISSED OPPORTUNITY

The qualification of teachers completing the questionnaires was not collected.

NEXT STEPS

The next step must be the testing of the second phase screening tools and validation of the screening tools. This requires diagnostic testing of children who have been identified as having development, behaviour, literacy and numeracy problems, as well as a control group who have been identified as having no problems.

REFERENCES

- Belmont L. The International Pilot Study of Severe Childhood Disability. Final Report: Screening for Severe Mental Retardation in Developing Countries. 1984
- Boyle CA, Decoufle P, Yeargin-Allsop MY. Prevalence and health impact of developmental disabilities. *Pediatrics*. 1994;93:863–865
- Bronson MB, Goodson BD, Layzer JI, Love JM. (1990). Child behavior rating scale. Cambridge, MA: Abt Associates. July 2012
- Christianson AL, Zwane ME, Manga P, Rosen E, Venter A, Downs D, et al. Children with intellectual disability in rural South Africa: prevalence and associated disability. *Journal of Intellectual Disability Research* 2002;46(2):179-186.
- Durkin MS. Population-based studies of childhood disability in developing countries: Rationale and Study Design. *International Journal of Mental Health* 1991;20(2):47-60.
- Durkin MS, Davidson LL, Desai P, Hasan ZM, Khan N, Shrout PE, Thorburn MJ, Wang W, Zaman SS. Validity of the ten questions screen for childhood disability: results from population-based studies in Bangladesh, Jamaica, and Pakistan. *Epidemiology*,1994;5(3):283-289.
- Durkin MS, Hasan ZM, Hasan KZ. The ten questions screen for childhood disabilities: its uses and limitations in Pakistan. *Journal of Epidemiology and Community Health*, 1995;49:431-436
- Emig C. School Readiness: Helping Communities Get Children Ready for School and Schools Ready for Children. *Child Trends Research Brief*. 2000.
- Glascoe FP. Early detection of developmental and behavioural problems. *Pediatrics in Review* 2000; 21 (8):272-280
- Kagan SL & Rigby E. Policy Matters: Improving the Readiness of Children for School: Recommendations for State Policy. A discussion paper on the Policy Matters Project. Feb 2003.
- Matthews JS, Ponitz CC, Morrison FJ. Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology*, Vol 101(3), Aug 2009, 689-704.
- Maulik PK, Darmstadt GL. Childhood Disability in Low- and Middle-Income Countries: Overview of Screening, Prevention, Services, Legislation, and Epidemiology. *Pediatrics* 2007;120(Supplement_1):S1-55.
- McClelland MM, Morrison FJ. The emergence of learning-related social skills in preschool children *Early Childhood Research Quarterly* 18 (2003) 206–224
- Mung'ala-Odera V, Meehan R, Njuguna P, Mturi N, Alcock KJ, Newton C. Prevalence and risk factors of neurological disability and impairment in children living in rural Kenya. *International Journal of Epidemiology* 2006;35(3):683-688.
- National Research Council. Early childhood assessment: Why, what, and how? Committee on Developmental Outcomes and Assessments for Young Children, C. E. Snow and S. B. Van Hemel (Eds). Board on Children, Youth and Families, Board on Testing and Assessment,

Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press, 2008.

Samms-Vaughan ME (ed.). Screening, Early Intervention and Referral for Health, Developmental and Behavioural Disorders in Jamaica: A Summary. *Journal of the Children's Issues Coalition* (2006); 1: 163-173

Sektnan M, McClelland MM, Acock A, Morrison FJ. Relations between early family risk, children's behavioural regulation and academic achievement. *Early Childhood Research Quarterly*. 2010, Oct 1; 25 (4):464-479..

The National Education Goals Panel. Principles and recommendations for early childhood assessments. Washington, DC: National Education Goals Panel. 1988.

Thorburn MJ, Desai P, Paul TJ, Malcolm L, Durkin MS, Davidson LL. Identification of childhood disability in Jamaica: the ten question screen. *International Journal of Rehabilitation Research* 1992; 15:115-27

UNICEF. School Readiness: a conceptual framework , United Nations Children's Fund, New York ; April 2012.

U.S. Department of Education. Good Start, Grow Smart Interagency Workgroup. Good Start, Grow Smart: A guide to Good Start, Grow Smart and other federal early learning initiatives. Washington, DC. 2006

Williford AP, Downer JT, Hamre BK, Pianta RC. The Virginia Kindergarten Readiness Project Executive Summary & Legislative Report Fall 2014, Phase II

Yaqoob M, Bashir A, Zaman S, Ferngren H, von Döbeln U, Gustavson KH. Mild intellectual disability in children in Lahore, Pakistan: Aetiology and risk factors. *Journal of Intellectual Disability Research* 2004;48(7):663-671.

Zaman S, Khan N, Islam S, Banu S, Dixit S, ShROUT P, Durkin M. Validity of the ten questions for screening serious childhood disability: results from urban Bangladesh. *International Journal of Epidemiology* 1990;19(3):613-20.