Assessing Inclusion Quality in Early Learning and Child Care In Canada with the SpeciaLink Child Care Inclusion Practices Profile and Principles Scale

A report prepared for the Canadian Council on Learning

Donna S. Lero, Ph.D.
Jarislowsky Chair in Families and Work
Centre for Families, Work and Well-Being
University of Guelph

February, 2010

Executive Summary

Recent advances in policy development and professional practice in the field of early childhood education and care have led to the expectation that it is appropriate and advantageous to include children with disabilities (special needs) in community-based early child care and learning programs. As more efforts are made to provide opportunities for young children with special needs to participate in inclusive programs, it is imperative that steps are taken to ensure that children and their parents benefit from programs that exemplify high overall quality and also address each child's unique needs. To date, evidence-based research of the effects of experiences in inclusive programs on children's development and parent support have been hampered by the lack of appropriate measures to assess inclusion quality in community-based programs that are reliable, valid, and relatively easy to administer by trained early childhood professionals.

The main purpose of this study was to examine the internal reliability and structural properties of the SpeciaLink Inclusion Principles Scale and Inclusion Practices Profile (recently combined in the SpeciaLink Early Childhood Inclusion Quality Scale 2009) as two new measures to assess inclusion quality, and to provide initial evidence of their validity. This technical report provides strong evidence for the utility and reliability of both SpeciaLink Inclusion measures when used together as measures of inclusion quality. Furthermore, both measures predict centre directors' global ratings of their centre's effectiveness in including children with special needs.

Inclusion Principles and Practices scores were available from almost 600 classrooms drawn from a purposive, voluntary sample of 216 child care centres and preschool programs across Canada. The data were obtained often as part of ongoing initiatives to improve program quality and enhance inclusion effectiveness, with observations scored by assessors who were trained for this purpose. Analyses supported the following conclusions:

1. The SpeciaLink Inclusion Principles Scale assesses the extent to which early learning programs have consciously adopted a set of principles that reflect a strong commitment to include all children in the community, to ensure their full participation in the program, and to support their parents as full partners. Significantly higher scores were obtained on each Principles item and on the average Principles Scale score for classrooms located in

inclusive centres compared to classrooms in centres that did not enrol any children with special needs. The largest difference between these groups was evident for the principle that reflects leadership, proactive strategies and advocacy for inclusion, confirming the importance of the director's role as an inclusion leader for programs adopting and maintaining a strong mandate in this area.

2. The SpeciaLink Inclusion Practices Profile assesses the extent to which physical and human resources are in place and parents, staff, and external professionals work together to ensure that each child's individual needs are met, while promoting full participation and positive social interactions within an early learning program. Inclusive classrooms in this sample evidenced strengths in three inclusion practices: Therapies (the provision of therapeutic interventions and collaborative involvements between staff, parents and therapists); Parent Involvement; and the Involvement of typically developing children with children with special needs, but scores on other practice items indicated room for improvement.
3. Both the SpeciaLink Inclusion Principles Scale and the Inclusion Practices Profile evidenced high internal reliability with each item contributing significantly to the total scale score.
4. Factor analysis supports the use of both instruments in assessments of inclusion quality. The two measures, taken together, reflect three dimensions of inclusion quality. When used in inclusive classrooms, the measures assess 1) Practices that confirm the use of explicit, written principles that support full inclusion in environments that are accessible and have materials to support the inclusion of children with different abilities; 2) Practices that reflect individualized attention to the needs of children with disabilities and their parents, including the collaborative development and use of individual program/education plans, support from therapists, planning for the transition to school, parent involvement, active efforts to promote social interactions among children, and staff support; and 3) Practices that illustrate the centre director's active role in providing leadership, mentoring and support for inclusion and support for those efforts by a Board of Directors of parent advisory committee.

5. Evidence for the external validity of the SpeciaLink inclusion scales by the fact that scores on both measures correlated significantly with directors' own ratings of how well they feel their centre is doing in providing inclusive care in the community.

Implications for Research

There are a variety of important research questions that could be addressed in studies using reliable and valid measures of inclusion quality. Previous research on early childhood education and care programs in Canada and the U.S. has identified the importance of a number of factors that are important for effective inclusion. The use of reliable and valid inclusion quality scales could help clarify how factors operate individually and in combination in centres and classrooms that differ in inclusion quality. Secondly, it is important to assess the effects of participating in high quality, inclusive programs for children with special needs to inform evidence-based practice. Research could also explore the effects of participating in high quality, inclusive programs for staff and for parents. On a community level, assessments could also be made of the effects of higher inclusion quality on the number and nature of children with special needs who are referred to and supported to participate in such programs. In any of these research activities, it is recommended that the SpeciaLink Inclusion measures be administered in combination with other well-recognized measures of program quality and that consideration be given to exploring the experiences of individual children with different needs and different requirements for support.

Implications for Policy and Practice

Reliable and valid measures of inclusion quality can also be used to assess the effectiveness of interventions aimed at improving inclusion quality and as useful tools to develop program standards for the profession. Furthermore, policy makers at the local, provincial, and federal levels require tools to determine if early learning programs are providing the quality of programs young children need and deserve and have a duty to use public funds wisely. Reliable and valid measures can contribute to public accountability for investments in programs and indicate where improvements are needed. Data can also be used to determine if current policies and methods of supporting inclusion in child care programs require improvement and suggest what kinds of additional supports are needed. Finally,

programs that provide high quality inclusive education and care should be used as exemplars for others, providing opportunities for mentoring and further model development.

INTRODUCTION

The benefits that result from well-developed systems of high quality early childhood education and care (ECCE) are increasingly recognized for the contributions they make to children's learning and development, and as effective means to promote social inclusion, parenting, neighbourhood cohesion, and parents' employment and/or participation as adult learners (Canadian Council on Learning, 2008; Friendly & Lero, 2005; OECD, 2006). Research conducted over the last 40 years in North America has demonstrated the value of high quality early childhood programs for all children, and particularly for disadvantaged children and children at risk as a form of early intervention and as a vehicle for enhancing children's language ability, social skills, and school readiness – all of which are important for children's adjustment to elementary school and their later academic success (Barnett, 2008; Howes, 2003; Lamb, 1998; McCartney, 2004; Peisner-Feinberg & Burchinal, 1997). The proviso that the programs are of high quality is critically important (McCartney, Dearing, Taylor, & Bub, 2007). Furthermore, research has demonstrated that experiences in poor quality care can be problematic both for children at risk of poor educational and social outcomes and for children at low risk (Burchinal & Cryer, 2003; Loeb, Fuller, Kagan & Carrol, 2004; Peisner-Feinberg & Burchinal, 1997).

Research on the contributors to, and dimensions of quality in early childhood programs has been important both for research purposes and, more particularly, as vehicles for informing professionals and policymakers about the importance of structural (regulatable) features that contribute to quality (adult:child ratios, group size, teacher education); process quality (the nature of teacher child-interactions and learning activities); and contextual factors (policies, funding arrangements, and community resources) that support program quality (Goelman, Doherty, Lero, LaGrange & Tougas, 2000). The development of tools to assess program quality, particularly the Early Childhood Environment Rating Scale (ECERS), originally developed in 1980 by Harms & Clifford and later revised by Harms, Clifford & Cryer in 1998, has been particularly significant. While not without its detractors, the ECERS has played a unique role in serving as a research tool, as a means of articulating which practices are important to promote positive child outcomes, in accreditation initiatives, and most recently as a means for promoting public accountability in state monitoring and quality improvement/rating systems (National Professional Development Center on Inclusion, 2009).

In a parallel fashion, the last 25-30 years has also seen an increase in research and professional practice literature that considers how community-based early childhood programs can best serve the needs of children with disabilities and their families. Policies and practices are evolving rapidly as the research and policy communities embrace the idea that children with disabilities (special needs) and their families have the right to participate fully in their communities and that community programs and public services should meet the needs of all children. In the United States, the legislative basis that affirms the right of young children with disabilities to participate in natural environments such as nursery schools, Head Start, and early childhood care and education programs with typically developing children is embodied in the Americans for Disabilities Act (ADA) and, in particular, in the provisions of the Individuals with Disabilities Education Act (IDEA), which states that children age 3-21 are entitled to a free, appropriate, public education in the "least restrictive environment" and provides funding and technical assistance to state governments, Head Start, public pre-kindergarten and child care programs for this purpose (IDEA, 2004). Public authorities (the U.S. Department of Education) are monitoring improvements in the number of children with disabilities who participate in such programs as a form of public accountability and program success (Buysse & Hollingsworth, 2009). Barriers, however, remain, in the form of limited formal education or professional development specific to inclusion for early childhood professionals, lack of adequate resources to hire additional staff with knowledge and skills to include all children, and lack of accessible environments, indicating the need for additional resources to support more programs to become inclusive (Doherty, Lero, Goelman, LaGrange, & Tougas, 2000; Killoran, Tymon, & Frempong, 2007; Shaw, Santos, Cohen, Araki, Provance, & Reynolds, 2001).

Both the United Nations Convention on the Rights of the Child and the more recent UN Convention on the Rights of Disabled Persons (CRPD) provide additional legal and moral impetus for governments to ensure that young children with disabilities have the opportunity to participate in community-based programs that support their development and full participation. A recent policy brief on early childhood by UNESCO describes the inclusion of children with disabilities in comprehensive, high quality ECCE as "the Early Childhood Imperative."

> *Comprehensive ECCE providing care, stimulation, parental support and access to relevant services enhances the effects of interventions for children with disabilities. Positive transition from home to preschool is encouraged when the early childhood programme allows for child-centred pedagogy and necessary individualised support to effectively address the diverse learning needs and abilities of children with disabilities. Indeed, early childhood programmes that are responsive to individual needs and respectful of diversity benefit all children and contribute to building the foundations of an inclusive society* (UNESCO, 2009: 1).

The report cautions that such benefits will only accrue if societies invest in ECCE and related services in ways that ensure early assessment and intervention, universal access, and reliable specialist support to community-based programs.

Canada does not yet have legislation similar to the ADA or IDEA, but has taken steps through policy documents to convey a respect for the rights of disabled persons. Of particular relevance is the fact that the 2003 Multilateral Framework Agreement on Early Learning and Child Care, which provides continuing federal funding for early childhood programs to the provinces and territories through the Canadian Social Transfer, stipulates that effective early learning and child care is based on five principles, among which is the principle that services should be inclusive. "Early learning and child care should be inclusive of, and responsive to, the needs of children with differing abilities; Aboriginal (i.e., Indian, Inuit and Métis) children; and children in various cultural and linguistic circumstances." Provincial governments are mirroring this principle in policy statements and several have undertaken specific initiatives to increase the number of children with special needs in child care programs with additional funding and through projects such as Partnerships for Inclusion-Nova Scotia and Keeping the Door Open in New Brunswick that provide on-site consultative support to improve overall program quality and inclusion practices. Moreover, early childhood professionals themselves have embraced a commitment to include all children in early childhood programs as a matter of social justice and as a component of what "quality" in early childhood programs means. Thus, explicit references are made to features that support the inclusion of children with special needs in the Canadian Child Care Federation's National Statement on Quality Early Learning and Care (2007), and in the Occupational Standards for Child Care Practitioners and the companion Standards for Child Care Administrators that have been developed in consultation with the early childhood field (Canadian Child Care Federation, 2003: Child Care Human Resources Sector Council, 2006).

An additional "touchstone" is the development of a joint position statement on early childhood inclusion by the (U.S.) Division for Early Childhood of the Council for Exceptional Children and the National Association for the Education of Young Children. The April 2009 joint position statement (which updates a 1993 document) was developed to articulate a common understanding of what inclusion means and for determining what practices and supports are necessary to achieve quality inclusion. The definition of early childhood inclusion provided is as follows:

> *Early childhood inclusion embodies the values, policies, and practices that support the right of every infant and young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families, communities, and society. The desired results of inclusive experiences for children with and without disabilities and their families include a sense of belonging and membership, positive social relationships and friendships, and development and learning to reach their full potential. The defining features of inclusion that can be used to identify high quality early childhood programs and services are access, participation, and supports (*DEC/NAEYC, 2009: 2*).*

The document further articulates that access to a wide range of learning opportunities, activities, settings and environments is a "defining feature" of high quality early childhood inclusion that results when modifications facilitate access for individual children and when programs utilize Universal Design for Learning (UDL) practices to ensure that every child has access to learning environments, materials and activities. Participation is enhanced when adults intentionally promote belonging, participation and the engagement of children with disabilities with their typically developing peers by using a variety of approaches including embedded routines and more explicit interventions to promote learning and social-emotional development. Supports refer to the system-level supports that are necessary to ensure that individual and program efforts are successful, including access to ongoing professional development, collaboration among key stakeholders (families, practitioners, specialists), program policies, and coordination with specialized services and therapists. Funding policies and quality frameworks/standards and guidelines are additional critical supports to ensure that early childhood professionals and programs can successfully address the needs of young children with disabilities and their families.

The DEC/NAEYC joint position statement and accompanying recommendations reflect what is currently known about inclusion quality based on research, policy and practice. Research

conducted by a variety of scholars including Bricker (2000), Bruder (1993), Buysse, Skinner and Grant (2001), Guralnick (1993; 2001), Odom (2002), Wolery (2007) and -- in Canada -- Irwin, Lero & Brophy (2000, 2004) have contributed to a growing consensus on the elements that are critical for inclusion quality in early childhood programs through research that incorporates the perspectives of program directors, early childhood educators, resource consultants, early childhood special education professionals, and parents. What is evident is that children with disabilities should be included in high quality programs, but that quality as it has been defined with respect to programs for typically developing children is not sufficient by itself for successful inclusion. Inclusion quality depends on both overall program quality and the factors that support successful individualization.

Bricker (2000) noted that among the variety of factors that are critical for the effectiveness of inclusion and successful outcomes are a) early childhood professionals' attitudes and beliefs, b) professional knowledge and skills, and c) adequate support systems ranging from professional development and collaboration to appropriate physical accommodations. Other aspects of inclusive programs that have been noted to be particularly important are the program's philosophy, positive teacher-child-interactions, administrative leadership and support, and a variety of opportunities for family involvement (Odom, 2002).

Wolery (2007) has stipulated that, in addition to a high quality environment as assessed by the ECERS or a comparable instrument, the following supports are necessary for individualizing instruction and ensuring the full participation of individual children with disabilities:

- The teacher must have training about teaching individualized goals in ongoing activities and about children with disabilities.
- The teacher needs frequent assistance from specialists and experts, which involves the specialist observing the class, providing suggestions, showing the teacher how to use interventions, and giving feedback.
- The teacher needs regular time to talk with specialists and plan activities and interventions.
- The child-to-staff ratio must be low, either by reducing the number of children or adding in-class adult assistance.
- Teachers must use individualized intervention strategies for the children with disabilities and monitor the child's progress frequently and adjust the strategies as needed.

- The class must have the adequate space, equipment, and materials and be accessible to the child with disabilities.
- Finally, parental participation must be encouraged and welcomed (NECTAC, 2007: 1-2).

Irwin, Lero & Brophy (2000; 2004) have noted that early childhood programs that are effective in including children with special needs require a mix of resources and supports within the centre (e.g., an accessible environment with specialized equipment and materials as needed; staff who are knowledgeable and committed to inclusion, who are given time to plan and participate in the development of individual program plans (IPPs) with community specialists and who form an effective team, and support and leadership provided by the program director) and supports provided to the program by specialists and therapists in the community, and through funding to reduce adult:child ratios with staff who have specialized training. Irwin et al. (2000) also observed that inclusion quality is affected by more general policies and funding arrangements related to ECCE that can affect program quality and staff turnover. Finally, these researchers have conceptualized inclusion quality as dynamic and multidimensional. Positive experiences and effective program supports can contribute to a virtuous cycle that leads to programs and ECCE professionals developing greater commitment, additional skills and confidence, and the capacity to include a wider range of children with more severe or challenging conditions. Alternatively, the loss or lack of a committed director, skilled early childhood staff, and/or program resources can impede progress and result in negative experiences for staff and children, resulting in a discouraging cycle and retrenchment from a commitment to include children with special needs in the program. The sustainability of inclusion quality is thus an important factor both for individual programs and for communities.

The Need for a Research Tool to Measure Inclusion Quality

As provincial, state, and municipal governments make progress in increasing the number of children with disabilities in inclusive programs, the need for a method to determine the quality of their experience and the capacities of programs to support inclusion has become critical. An effective, reliable and user-friendly tool to assess inclusion quality is required for several purposes. Those purposes include 1) research on children's experiences in inclusive programs to assess short and longer-term impacts and contribute to evidence-

based policy and practice; 2) program evaluations related to alternative funding and support models and professional development; 3) self-assessment for programs seeking to improve their effectiveness; 4) the development of inclusion quality standards, and 5) public accountability and policy evaluation. The need for such a measure has been identified as critically important to advance research, policy and practice by researchers (e.g., Buysse, Skinner & Grant, 2001; Buysse and Hollingsworth, 2009), professionals (e.g., the Council for Exceptional Children, 2007; the National Professional Development Centre on Inclusion, 2009) and policy planners (Child Care Law Center, 2004).

Initial Steps in Measurement Development

1. ECERS and ECERS-R

One of the reasons Harms, Clifford & Cryer revised the original version of the Early Childhood Environment Rating Scale was to more fully reflect the inclusion of children with disabilities and sensitivity to cultural diversity. The current version addresses aspects related to inclusion in 12 items and 15 indicators that relate to accessibility, adaptations and modifications of materials and equipment, representation of people with disabilities in books and pictures and dramatic play, and facilitation of participation in activities such as meals and snacks, group time, gross motor activities, and language activities. Generally speaking, the presence of a child with a disability in a program requires some attention to rate a '3' on the item and a more complex response to rate a '5' on a 7 point rating scale. For most items, an N/A (not applicable) is permitted if no child with a disability is currently present. In addition, there is one specific item, Item 37 – Provisions for Children with Special Needs. It is used only if there is at least one child with special needs enrolled and present in the classroom when observations are being made -- otherwise it is marked N/A and not included in the overall program quality score. Item 37 indicators relate to four dimensions of inclusion:

- Collaboration with parents and professionals
- Individualization of child programming
- Modifications and adaptations of the program
- Facilitation of inclusion and participation with other children

A rating of '3' or lower on Item 37 reflects a situation where assessments are either not done or are not shared with staff in ways that would be useful to meet the needs of the child; only limited modifications in teacher-child interactions, the environment, or program activities have been made to meet the needs of children with disabilities; parents are involved minimally or to some extent in setting goals for the child, but are not extensively involved or provided with information and support; and there is limited involvement of children with disabilities with other children in on-going activities. A rating of '5' or higher indicates that staff are actively involved in programming to meet the child's needs and follow recommendations made by professionals to help children meet specific goals; modifications to activities and the environment have been made so that children with disabilities can participate fully and comfortably with other children; and parents are active partners with the staff and are respected and supported.

While the revisions to the ECERS represent a major change in the instrument and evidence of the acceptance of inclusion as an aspect of quality, they still do not adequately reflect the measures needed to assure that children with special needs are truly welcomed into child care settings or that centres and staff have the qualifications and commitment to meet the needs of young children with disabilities and their families. Thus, the ECERS-R remains an important measure of global program quality, but is not useful on its own for more in-depth investigations of inclusion quality.

2. The Early Childhood Special Education Program Design and Development Guide (EC-SPEED) was developed in 1993 by Johnson, McMillan, Johnson & Rogers. Along with a set of videos, the EC-SPEED was developed originally for use in Early Childhood Special Education programs at the university level in the U.S. and was intended to assess the capacities and effectiveness of regular group settings to include children with a full range of types and levels of disabilities. It was used for formative assessment and self-study for a period of time, and contributed to further understanding of what full inclusion could look like. Unfortunately, the scoring of EC-SPEED takes three full days with three trained observers to complete. Consequently, it has not been used in research and is inappropriate for many practical purposes.

3. The Quality of Inclusive Experiences Measure (QuIEM) (Wolery, Pauca, Brashers & Grant, 2000) was intended to provide a comprehensive assessment of inclusion quality in individual classrooms. It includes seven subscales: (1) Program Goals and Purpose, (2) Staff Supports and Perceptions, (3) Accessibility and Adequacy of the Physical Environment, (4) Participation and Engagement, (5) Individualization, (6) Adult-Child Contacts and Relationships, and (7) Child-Child Contacts and Interactions. The QuIEM is completed separately for each child with disabilities in a classroom through observation, interview, and document review. It is intended to be used to improve services for a child with disabilities, to gather information for program evaluation, and to conduct research. Regrettably, development work on the QuIEM has not continued. It is available from the authors as an unpublished manuscript; no work has been done to establish its reliability or validity as an assessment tool.

4. The SpeciaLink Child Care Inclusion Practices Profile and Principles Scale (Irwin, 2005) consists of two instruments to assess the quality of inclusive early childhood programs. (The instruments are described in more detail in the Methodology section of this report.) These scales were originally developed in 1990-1992 as screening tools to help SpeciaLink identify "exemplary mainstream [sic] centres" in each province through a process that involved nomination of programs by key provincial staff, child care professionals and local disability advocacy organizations. Based on extensive reviews of the literature and consultation with researchers, trainers and practitioners, the then 5-item Principles and 10-item Practices measures were used in a brief screening questionnaire to generate a "Mainstream Profile" (Irwin, 1993). Each item was scored on a scale from 1 to 5 based on fairly general descriptions. The scales were substantially revised in 2004-5 and today consist of a 6-item Principles Scale and the 11-item Practices Profile, with specific indicators and scoring procedures based on the ECERS. Each item is scored from 1 to 7. The Principles Scale is designed to assess a centre's commitment to inclusion in policy and practice, while the Practices measure is designed to assess the quality of practices used to support inclusion in a specific classroom. Both scales are based on observation, document review and interviews with program staff. The 2005 version has been made available as a free download by SpeciaLink and as a handout at workshops designed to train individuals to use the tool in local communities for self-assessments and in local program evaluations of quality

improvement initiatives. An accompanying DVD provides explanations and practice examples for scoring items reliably. In 2009, SpeciaLink released an expanded version of the current instruments, referring to the Practices and Principles measures as two sections of the *SpeciaLink Early Childhood Inclusion Quality Scale.*

The purpose of the current study was to examine the internal reliability and structural properties of the SpeciaLink inclusion measures based on data collected in almost 600 classrooms across Canada between 2005 and 2008. Analyses included an examination of item and average score distributions, assessments of inter-item consistency and reliability, and a confirmatory factor analysis. Additionally, SpeciaLink Principles and Practices scores were correlated with centre directors' subjective ratings of their centre's effectiveness in providing inclusive care as an indicator of the concurrent validity of the inclusion measures.

METHOD

2.1 Sample

Data were initially collected from 596 classrooms in child care centres and half-day preschool programs across Canada between 2005 and 2008. Many of the assessments were completed as part of on-going initiatives designed to improve overall program quality and centres' capacities to include children with special needs effectively, in which case results of assessments were shared with centre directors and lead teachers in collaborative action planning processes.[1] Participation in these programs was largely voluntary on the part of centres; consequently this data set most likely represents centres that were interested in quality improvements and in enhancing their effectiveness in including children with special needs.

Due to missing data, the final sample employed in analyses was 588 classrooms drawn from 216 centres. Approximately half the classrooms were in centres located in Ontario (Toronto and Halton region); 38.5% were located in the Atlantic Provinces, with greater representation from New Brunswick and Nova Scotia; and a smaller percentage (10.8%) were drawn from Manitoba, Alberta and British Columbia.

Almost half of the observations (286 or 48.6%) were based on first or only assessments, while 302 were obtained following an intervention or after a sustainability period. In most cases, only one room was observed at a given time; two or more rooms were observed in 46 centres, almost all of which were located in Toronto. When more than one room in a centre was assessed, the same Principles scores were assigned to each case, but Practices items were scored for each room separately.

One would expect scores on the Inclusion Principles and Practices measures to differ depending on the number of children with special needs that are enrolled and, to some extent, on the severity of their conditions. Information about the number and nature of children in the room was based on score sheet information when available; information about children with special needs enrolled in the centre was based on information obtained from supplemental questionnaires from directors. Based on the information available, we were able to categorize the 588 classrooms as follows:

Presence of Children with Special Needs	**N of Classrooms**	**%**
Classrooms with no children with special needs, no children with special needs enrolled in the centre	79	13.4%
Classrooms with no children with special needs, but at least one child with special needs is enrolled in the centre	63	10.7%
Classrooms with one or more children with special needs	332	56.5%
Classrooms in which the number of children with special needs is unknown and centre enrolment is unknown	114	19.4%
Total number of classrooms	588	100.0%

As part of our analysis, score reliabilities and factor analyses were computed to determine whether the Inclusion Principles Scale and Inclusion Practices Profile were equally reliable for different subgroups in this sample of classrooms and whether the same factor structure applied in each circumstance. Comparisons of contrasting groups on average Principles and Practices scores were also performed.

2.2 Measures

The *SpeciaLink Inclusion Practices Profile and Principles Scale – 2005 version* (Irwin, 2005) consists of two measures that were designed to assess inclusion quality. The SpeciaLink Inclusion Principles Scale pertains to the centre or preschool; the SpeciaLink

Inclusion Practices Profile reflects the centre's and director's approach, but more specifically describes the practices and environment observed in a specific playroom or classroom. A description of the six Principles and 11 Practices follows in Table 1 and Table 2. A sample Principle and Practice item is included in Appendix A. The SpeciaLink Inclusion Principles Scale is based on questions posed mainly to the centre director and assesses the extent to which a centre has adopted principles to guide decisions about enrolling children with disabilities and to ensure that their needs are met, as far as possible, within the regular setting. The scale consists of six items and 92 indicators. Scoring is based on observations, respectful questioning of the centre director (and other centre stakeholders such as lead ECEs, parents and support staff), and document review. A score of '5' or higher on the Principles items requires that aspects of inclusion are covered appropriately and explicitly in a written policy.

The SpeciaLink Inclusion Practices Profile consists of 11 items and 158 indicators. The items cover physical aspects of the environment, staff training and staff support, evidence of the director's leadership in support of inclusion, collaborative relationships with therapists and specialists, the development and implementation of individual program plans (IPP/IEP) for each child with special needs, parental involvement, involvement of typically developing children in interactions with children with special needs, support for inclusion by a board of directors or parental advisory committee, and procedures to facilitate a smooth transition to school. Items are equally weighted to produce a single, average Inclusion Practices score with no subscale scores. Scoring of the items is based on observations, respectful questioning of the centre director and early childhood educators in the room being observed, and document review.

The layout of the items and indicators and the scoring method used for both instruments is based on the method used in scoring the Early Childhood Environmental Rating Scale – Revised (Harms et al., 1998). Each item is scored in whole integers from 1 (inadequate) to 7 (excellent) based on the indicators, which are descriptions of quality listed below the 1, 3, 5 and 7 ratings. Item scores and overall average scores were used for analysis.

In addition to the SpeciaLink Inclusion Principles Scale and Practices Profile, a three-page questionnaire was answered by 269 centre directors, which provided additional information

about the centre's inclusion history, the number of children with special needs enrolled in the centre at the time of the first observation, and the director's perceptions of the centre's strengths and challenges in providing inclusive care and education.

Table 1

Items Comprising the SpeciaLink Inclusion Principles Scale

1.	The principle of "zero reject"	No *a priori* limits are set that would exclude children with particular levels or types of disabilities.
2.	The principle of natural proportions	The centre enrolls roughly 10-15% of children with special needs, in "natural proportion" to their occurrence within the community.
3.	Same hours/days of attendance available to all children	Children with special needs are not limited in attendance options (e.g., part time or fewer days per week) compared to typically developing children.
4.	Full participation	The centre is committed to enabling the full participation of children with special needs within regular group activities and routines through accommodations, modifications and extra support where necessary. Pull-out time is limited or avoided when interventions can be done in the room and can involve other children.
5.	Maximum feasible parent participation at the parent's comfort level	The centre makes concrete efforts to encourage parents' participation at Individual Program Planning (IPP) meetings, committee meetings, training sessions and parent networking events. It also involves families to the maximum extent feasible, providing child care, transportation, flexible meeting hours, translation, etc., as necessary. "Maximum feasible participation" does not force family participation as a requirement of enrolment, but it demonstrates that every effort is made to make families feel welcomed and valued.
6.	Leadership, pro-active strategies and advocacy for high quality, inclusive child care.	The director, staff and board actively promote inclusion both in the centre and through public activities designed to effect policy change and ensure adequate support for high quality, inclusive programs.

Table 2

Items Comprising the SpeciaLink Inclusion Practices Profile

1.	The physical environment	The degree to which modifications have been made to support inclusion and enhance accessibility
2.	Equipment and materials	The extent to which adaptations have been made and special equipment and materials are available and used in ways that allow children to participate comfortably in the group and that enhance their skills and capabilities
3.	Director's role	The director is actively involved in supporting inclusion; is knowledgeable and enthusiastic
4.	Staff support	The degree of support provided to staff through consultative assistance and flexible/reduced ratios to support them in meeting individual children's needs
5.	Staff training	The number of staff who have some training related to special needs and staff's access to continuing in-service training opportunities
6.	Therapies	The degree of provision of therapeutic intervention provided to children in the centre — and the manner in which it is provided (in a pull-out space or separate clinic and/or within the program); the extent to which staff are involved in goal setting and work collaboratively with parents and therapists
7.	Individual Program Plans (IPPs)	The extent to which IPPs are used to inform programming in the regular group setting, and are developed collaboratively by resource teachers or consultants, staff and parents
8.	Parents of children with special needs	The extent to which parents are involved, receive information and participate in decision making—both related to their own child, and as an advocate for other children at the centre and in the community
9.	Involvement of typically developing children	The extent of interaction between children with special needs and their peers; the extent to which social inter-action is facilitated and children are accepted by others
10.	Board of directors or advisory committee	The centre's board or parent advisory committee promotes and supports inclusion as policy in the centre and as desirable in the wider community
11.	Transition to school	The degree to which the local school or school board, parents and program staff work collaboratively in transition planning and are proactive to support the child's school placement

2.3 Data Collection Procedures

Initial training to establish reliability of scoring procedures was done in each major location by SpeciaLink trainers Sharon Hope Irwin, Debra Mayer, or Dixie vanRaalte Mitchell, or by other individuals trained by SpeciaLink. In on-going intervention projects, inclusion facilitators were trained to ensure that inter-rater reliability was established and maintained to be at least 85%. Full day training workshops provided by SpeciaLink in other locations included reliability checks to establish the 85% criterion. All data used in this project were collected by trained assessors in each location. Score sheets were forwarded to SpeciaLink and then to the University of Guelph for analysis.

2.4 Conceptual and Methodological Challenges

The SpeciaLink instruments include a definition of a child with special needs/disabilities to facilitate a common frame of reference. The definition, which follows, refers mostly to children with an identified disability or condition. Our experience in conducting research on inclusion in child care programs leads us to know, however, that in some cases a child is in the process of being referred or is on a waiting list for an assessment. Consequently, this week (when observations are conducted) a child might not meet the definitional criteria, while next week he/she may. This affects not only who is counted (and potentially which classrooms or centres are considered to have a child with special needs), but also whether funding is provided to hire a program assistant and whether or not there is ongoing access to specialists and professionals in the community.

SpeciaLink's definition of a child with special needs / disabilities is as follows:

> *For the purposes of this tool, **"Child with Special Needs/Disabilities"** refers to children whose disabilities/disorders/health impairments meet your province's eligibility criteria for additional support or funding in child care settings. In areas with no additional support or funding, this term refers to children with an identified physical or intellectual disability that would be classified as moderate to severe. This definition does not include children usually described as being at high risk, who have not actually been identified as having a significant disability or delay — even though such children may require curriculum modifications and/or additional attention. Depending on your province/region, a child with significant emotional and/or behavioural problems may be classified either as a child with special needs or a child at risk.*

2.5 Treatment of Missing Data; Scoring in Centres and Classrooms that do not Have Any Children with Special Needs Enrolled

Nine cases were initially excluded from analysis because of substantial missing data on both the Principles and Practices Scales (i.e., scores were missing for at least half of the 17 items that comprise the two scales). In all cases, the classrooms were in centres that did not include any children with special needs, and, thus, legitimately might have been scored "1" on the missing items; however, in other classrooms in which no children with special needs were enrolled at the time of assessment, observers scored items based on what the director and teaching staff described as usual practice when children with special needs have been present. We did not adjust scores to account for this, but did undertake separate analyses on the sample of classrooms in which one or more children with special needs were enrolled and present in the classroom (referred to later in the report as inclusive classrooms) as a more rigorous assessment sample.

In one case, a response to Principle 6 (Leadership for inclusion) was missing because the director was new and did not know enough about the history of inclusive experiences in the centre. On the Practices Profile, there were many missing scores (99 or about one sixth of the sample) for Item 10, Board of Directors and other similar units. In most cases, observers left this item blank or wrote in N/A because there was no board or parent advisory committee, as is commonly the case in privately owned centres. Rather than leave the item blank or dropping it from the average score, Irwin has directed that the item be scored a "1" since best practice in early childhood programs includes having a board or parent advisory committee. Not having one deprives the centre director of the opportunity to obtain support from a board or advisory committee for decisions and policies related to inclusion. It also deprives parents of children with special needs and other parents/community members from participating in ways that support the centre's commitment to inclusion and/or the steps a director and staff may feel are required to assure or improve inclusion quality.

In addition, there were 24 cases in which one or more Practices items were left blank. To avoid confusion with different numbers in different analyses, the analyses presented in this report most often refer to 564 complete cases for analysis of SpeciaLink Practices items.

RESULTS

This results section is divided into four parts. The first part presents descriptive statistics on the Principles and Practices scales and item scores. The second focuses on inter-item consistency and statistical reliability. The third summarizes results of factor analyses conducted on each scale separately and on the combined scales (17 items) to determine whether their inclusion into a single score is appropriate and to identify the underlying factor structure. Preliminary data are provided to support the validity of the scales in the first and fourth sections.

3.1 Descriptive Statistics

a) SpeciaLink Principles Scale Scores

Descriptive statistics were computed for each item and for the average Principles score to assess distributions, normality and missing data. Table 3 presents the descriptive statistics for the full sample of classrooms.

Table 3

Means, Standard Deviations and Ranges of SpeciaLink Inclusion Principles Item Scores and the Average Principles Score for all Classrooms

	N	Mean	Median	Standard Deviation	Minimum	Maximum
Principle 1 Zero Reject	587	4.51	4.00	1.48	1	7
Principle 2 Natural Proportions	587	3.93	4.00	1.31	1	7
Principle 3 Same Hours	587	4.48	4.00	1.53	1	7
Principle 4 Full Participation	587	4.20	4.00	1.48	1	7
Principle 5 Maximum Parent Participation	587	4.19	4.00	1.48	1	7
Principle 6 Leadership, Proactive Strategies	587	3.48	4.00	1.70	1	7
Average Inclusion Principles Score	587	4.13	4.00	1.24	1.00	6.83

N = 587, 1 missing

Scores on each Principles item range from 1 to 7. Average item scores range from 3.48 to 4.51, with the lowest average score obtained for Principle 6: Leadership, Proactive Strategies and Advocacy for High Quality, Inclusive Child Care and the highest average score for Principle 3: Same Hours and Days of Attendance.

Although Kolmogorov-Smirnov values indicate that all of the Principles item score distributions differ significantly from normal, skewness and kurtosis values were within a reasonable range (none were above 2 and most below 1). Examination revealed some interesting differences in responses to specific items. For example, the most common scores on Principle 1 (Zero Reject) were 4 and 6. A score of '4' on this item commonly suggested that the centre and staff are willing to include children with a range of disabilities, but do not have a written policy to this effect. In contrast, the distribution of scores for the total sample on Principle 6 (Leadership) revealed that 21.6% of classrooms received a score of '1' (indicating no active steps had been taken to develop a verbal or written policy on inclusion, no involvement by the director or staff in advocacy activities or in providing workshops on inclusion, and the passive use of funds and supports, rather than an active approach to marshal additional resources.) The second highest score for this item was a '4' (24.5%), although 29.8% of classrooms were scored 5, 6 or 7, suggesting considerable variation among centres on this important dimension.

As an initial effort towards establishing the validity of the Principles scale, descriptive statistics and item distributions were compared for classrooms in centres that did and did not include any children with special needs, with the assumption that centres that did not enrol any children with special needs would be less likely to demonstrate a strong commitment to full inclusion or have written policies to that effect than would inclusive centres. Analysis supported this hypothesis. Inclusion Principles item scores obtained from classrooms in centres that were known not to have any children with special needs enrolled (N=79) had significantly lower scores on each Principles item and on the Average Principles Scale score than classrooms in inclusive centres. The average Principles Scale score was 3.02 (s.d. = 0.80) in classrooms located in centres that did not enrol any children with special needs. The average Principles score in classrooms in inclusive centres was 4.36 (s.d. = 1.19). Appendix Tables B-1 and B-2 provide the descriptive data for classrooms in centres that did not include any children with special needs and for classrooms in inclusive centres. All comparisons

between groups (i.e., for scores on each individual Principles item and for the Average Principles Scale score) were highly significant ($p < .001$), using Welch F ratios on One-way Analysis of Variance tests that correct for unequal sample sizes and unequal variances. Calculated effect sizes (omega) indicate that the differences between the groups (with the exception of Principle 3, Same Hours and Days) are in the medium range.

Table 4

Welch F-Ratios from Analysis of Variance Tests for Differences in SpeciaLink Principles Scores Between Classrooms in Centres with No Children with Special Needs and Classrooms in Inclusive Centres

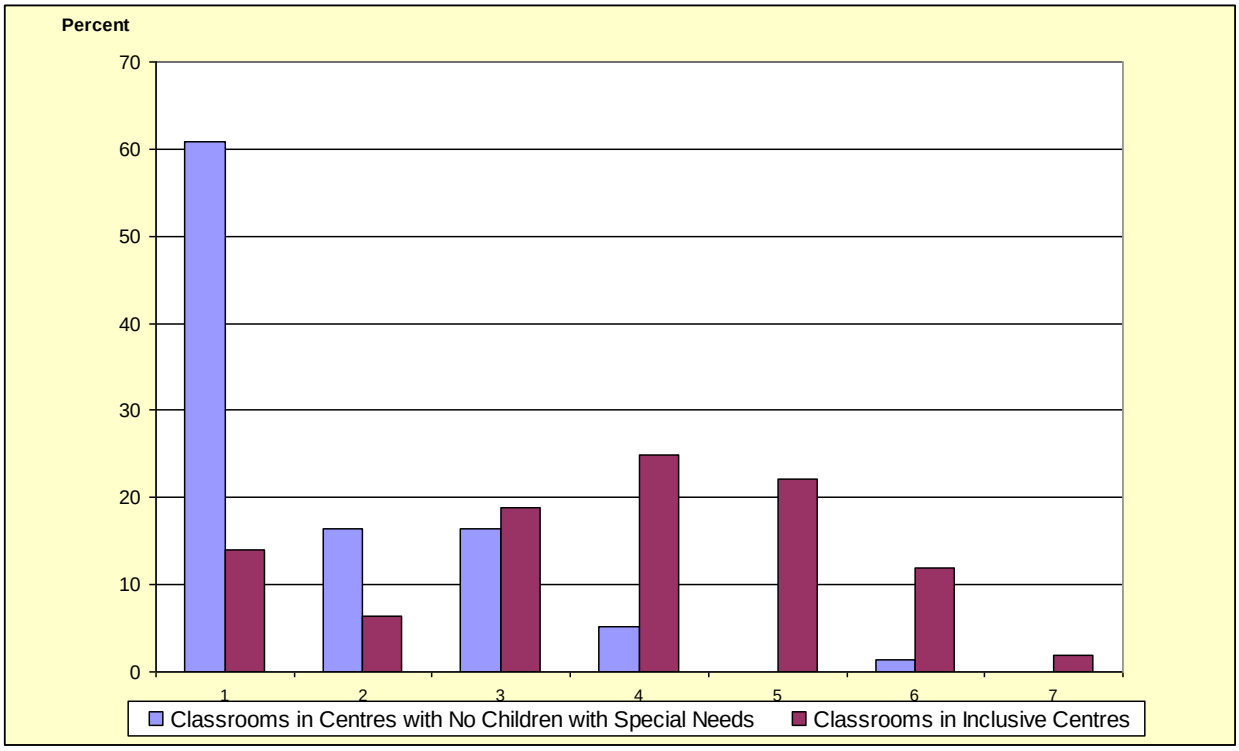
	Statistic[a]	df1	df2	Effect size (Omega)
Principle 1 Zero Reject	85.33*	1	130.64	.33
Principle 2 Natural Proportions	174.48*	1	150.65	.41
Principle 3 Same Hours and Days	20.85*	1	112.45	.19
Principle 4 Full Participation	89.07*	1	135.20	.33
Principle 5 Maximum Parent Participation	58.51*	1	137.05	.27
Principle 6 Leadership, Proactive Strategies	214.14*	1	154.02	.45
Average Inclusion Principles Scale Score	155.47*	1	151.43	.39

[a]Asymptotically F distributed df1 for between groups, df2 for within groups
All $p < .001$

Interestingly, the largest difference between groups was observed for scores on Principle 6: Leadership and Proactive Strategies. The mean score was 1.71 in cases when no children were enrolled in the centre, compared to 3.78 in classrooms located in inclusive centres. Odom (2000) and Irwin, Lero & Brophy (2004), among others, have identified the director's leadership as a critical feature for inclusion quality. Indeed, in some cases, it may account for the centre not enrolling children with special needs at all. The distribution of scores on Principle 6 in the contrasting classroom groups is shown in Figure 1.

Figure 1

Distribution of Scores on Principle 6: Leadership, Proactive Strategies and Advocacy in Classrooms in Centres with No Children with Special Needs and in Classrooms in Inclusive Centres



N = 79 classrooms in centres with no children with special needs, 421 classrooms in inclusive centres

b) SpeciaLink Practices Profile Scores

Descriptive statistics were computed for each Inclusion Practices item and for the average Practices Profile score to assess distributions, normality and missing data. Table 5 presents the descriptive statistics for the full sample of classrooms for which complete data were available.

Table 5

Means, Standard Deviations and Ranges of SpeciaLink Inclusion Practices Item Scores and the Average Practices Profile Score for all Classrooms

	N	Mean	Median	Standard Deviation	Minimum	Maximum
Practice 1 Physical Environment	564	3.07	4	1.88	1	7
Practice 2 Equipment / Materials	564	2.64	2	1.57	1	7
Practice 3 Director's Role	564	3.39	4	1.61	1	7
Practice 4 Staff Support	564	3.29	4	1.74	1	7
Practice 5 Staff Training	564	3.53	4	1.73	1	7
Practice 6 Therapies	564	4.13	4	2.06	1	7
Practice 7 IPPs	564	3.45	4	2.08	1	7
Practice 8 Parent Involvement	564	4.15	5	2.03	1	7
Practice 9 Involvement of Typical Children	564	4.80	5	1.72	1	7
Practice 10 Board of Directors	564	2.39	2	1.56	1	7
Practice 11 Transition to School	564	4.05	4	2.09	1	7
Average Inclusion Practices Score	564	3.54	3.55	1.17	1.00	6.55

N = 564, 24 missing

Scores on each Practices item range from 1 to 7. Mean item scores range from 2.39 to 4.80, with the lowest average scores obtained for Practice 10: Board of Directors, and Practice 2: Equipment and Materials. Both of these practice items had a median score of 2, which is considered inadequate. The highest average score was observed for Practice 9: Involvement of Typical Children, which assesses the extent to which staff promote social interactions and full participation of children with disabilities and typically developing children together in a cooperative and collaborative manner.

Although Kolmogorov-Smirnov values indicate that all of the Practices item score distributions differ significantly from normal, skewness and kurtosis values were within a

reasonable range (none were above 2.00 and most below 1.00). Examination of the item distributions revealed that many items had a relatively high percentage of cases with a score of '1' (particularly Practices items 1, 2, and 10) with other scores clustering in the 4, 5 and 6 range.

In order to provide more meaningful information about inclusive classrooms, descriptive statistics and item distributions were compared for classrooms that did and did not include any children with identified special needs see Table 6). Among 330 inclusive classrooms (those that included one or more children with special needs), mean Practice item scores range from 2.71 for Practice 10: Board of Directors to 4.99 for Practice 9: Involvement of Typical Children. Three items have median scores of '5', the cut-off for describing "good" inclusive practice. These items are Practice 6: Therapies; Practice 8: Support for Parents of Children with Special Needs; and Practice 9: Involvement of Typical Children.

As expected, scores on all Practices items and on the average Inclusion Practices Profile score obtained from inclusive classrooms were significantly higher than scores obtained in classrooms that do not include children with special needs. The average SpeciaLink Practices Profile score for inclusive classrooms is 3.88 (s.d. = 1.01), compared to the average Profile score of 2.76 (s.d. = 1.04) for rooms without any children with special needs enrolled at the time of assessment, a difference that is highly statistically significant using Welch F ratios on One-way Analysis of Variance tests that correct for unequal sample sizes and unequal variances (see Table 7). Calculated effect sizes (omega) ranged from .18 to .46. Effect estimates between .30 and .49 are considered to represent medium effects, and those calculated to be .50 or above are considered large effects.

Figure 2 shows the distribution of Inclusion Practice scores obtained in inclusive classrooms, using the broad categories of inadequate (scores of 1 or 2), minimal (3 or 4) and good (in this case, 5, 6 or 7 – 7 would normally be considered excellent). In this sample, 50 percent or more scores were categorized as "good" only for Practice 6: Therapies; Practice 8: Involvement of Parents of Children with Special Needs; and Practice 9: Involvement of Typically Developing Children. The majority of Inclusion Practice scores tended to fall in the "minimal" range (a score of 3 or 4), indicating the opportunity for improvements in inclusion practices and inclusion supports.

Table 6

Means, Standard Deviations and Range of SpeciaLink Inclusion Practices Items and the Average Practices Profile Score for Inclusive Classrooms

	N	Mean	Median	Standard Deviation	Minimum	Maximum
Practice 1 Physical Environment	330	3.45	4	1.79	1	7
Practice 2 Equipment / Materials	330	3.15	3	1.50	1	7
Practice 3 Director's Role	330	3.68	4	1.45	1	7
Practice 4 Staff Support	330	3.80	4	1.50	1	7
Practice 5 Staff Training	330	3.77	4	1.61	1	7
Practice 6 Therapies	330	4.51	5	1.78	1	7
Practice 7 IPPs	330	3.98	4	1.92	1	7
Practice 8 Parent Involvement	330	4.41	5	1.73	1	7
Practice 9 Involvement of Typical Children	330	4.99	5	1.49	1	7
Practice 10 Board of Directors	330	2.71	3	1.58	1	7
Practice 11 Transition to School	330	4.19	4	1.83	1	7
Average Inclusion Practices Score	330	3.88	3.91	1.01	1.00	6.45

N = 330, 2 missing

Table 7

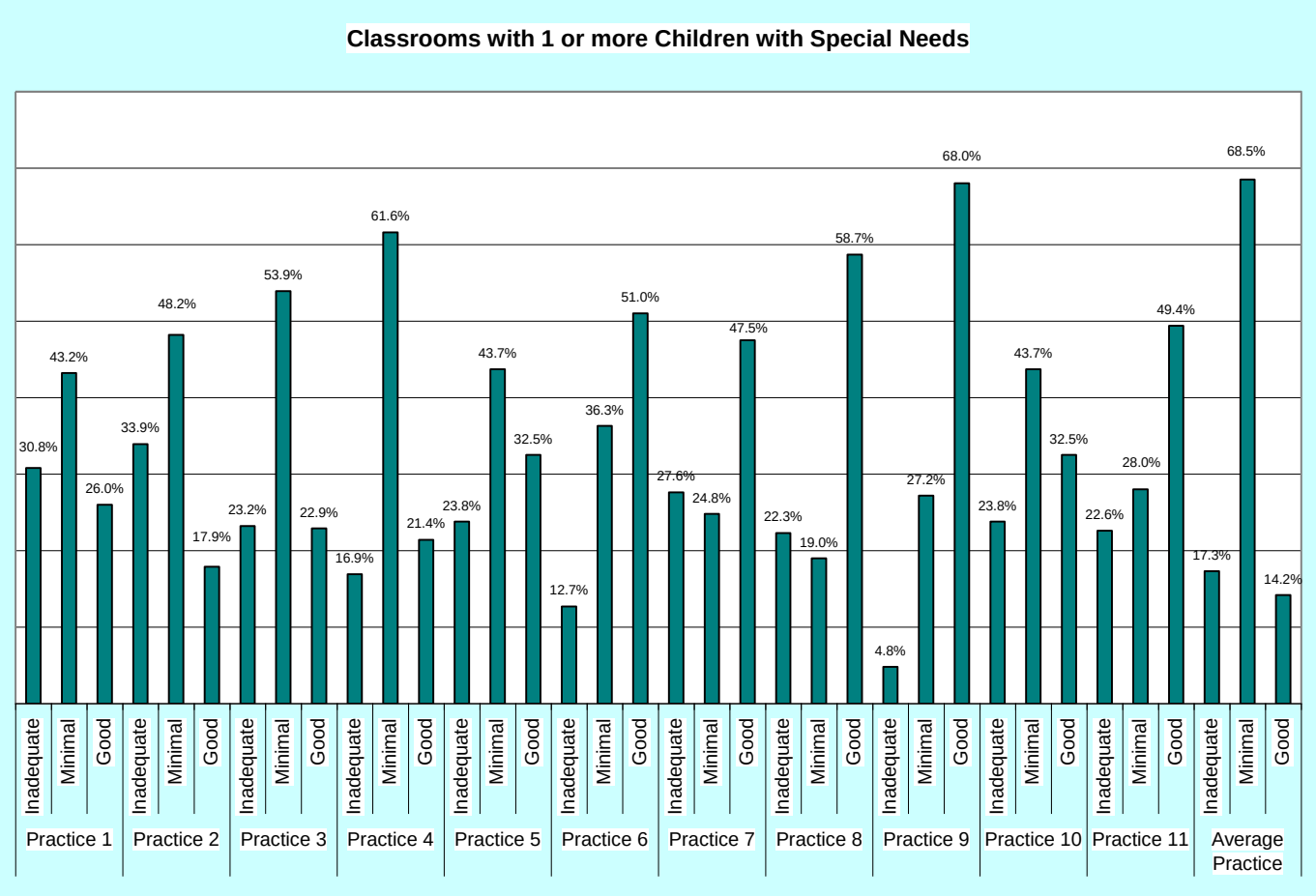
Welch F-Ratios from Analysis of Variance Tests for Differences in SpeciaLink Practices Scores Between Classrooms in Centres with No Children with Special Needs and Inclusive Classrooms

	Statistic[a]	df1	df2	Effect size (Omega)
Practice 1 Physical Environment	30.97*	1	358.85	.24
Practice 2 Equipment / Materials	115.15*	1	437.22	.41
Practice 3 Director's Role	45.86*	1	342.87	.29
Practice 4 Staff Support	138.65*	1	386.02	.46
Practice 5 Staff Training	20.13*	1	353.86	.20
Practice 6 Therapies	58.75*	1	318.44	.34
Practice 7 IPPs	101.91*	1	397.37	.40
Practice 8 Parent Involvement	33.46*	1	302.31	.26
Practice 9 Involvement of Typical Children	23.66*	1	299.63	.23
Practice10 Board of Directors	46.54*	1	442.35	.27
Practice 11 Transition to School	15.83*	1	309.84	.18
Average Inclusion Practices Profile Score	137.81*	1	364.13	.46

[a]Asymptotically F distributed df1 for between groups, df2 for within groups
All $p < .001$

Figure 2

Distribution of Inclusion Practice Scores for Inclusive Classrooms



3.2 Structural Properties of the Inclusion Principles Scale and Practices Profile

a) The SpeciaLink Inclusion Principles Scale

Inter-item correlations and internal consistency estimates (i.e., coefficient alpha) were used to determine the extent to which each scale could be substantiated as an internally reliable measure. Items were expected to correlate with each other, but not so highly as to suggest that each does not make a distinct contribution. Scores on the Principles and Practices measures were also expected to be related to each other. For example, a classroom in which many practices are observed that facilitate children's full participation and in which staff are well supported to work collaboratively as a team with parents and professionals to meet each child's individual needs would be far more likely in a centre in which a commitment to quality inclusion is evident in verbal and written policies. In fact, for the full sample of classrooms, average Inclusion Principles Scale scores correlated .73 ($p < .001$) with average Inclusion Practices Profile scores.

Correlations among the individual items on the Inclusion Principles Scale were quite high. The average inter-item correlation was .63 and corrected item–total correlations ranged from .67 to .79 with a median item-total correlation of .76 for the full sample. The internal consistency estimate, Cronbach's alpha, is an indicator of internal reliability – the extent to which the items measure the same construct. For the full sample of classrooms, Cronbach alpha = .91, indicative of high inter-item reliability.

These procedures were repeated separately for classrooms in inclusive centres (those known to include at least one child with special needs at assessment) and in classrooms in centres that did not enrol any children with special needs. As expected, average inter-item and item-total correlations were higher in the subset of classrooms in inclusive centres: inter-item correlations averaged .64 and the computed Cronbach alpha reliability statistic was .91. Among the subset of classrooms in centres that did not have any children with identified special needs, average inter-item correlations were somewhat lower. The average inter-item correlation was .44 and corrected item-total correlations ranged from .34 for Principle 6 (Leadership, Proactive Strategies) to .75 for the Principle of Zero Reject. The computed Cronbach alpha was .82, still indicative of high internal consistency.

In summary, all items on the SpeciaLink Inclusion Principles Scale significantly contributed to the total/average scale score indicating a centre's commitment to inclusion principles and the scale demonstrates a high level of internal reliability (inter-item consistency). This was not unexpected for two reasons. First, to obtain a score of '5' or higher on each item requires that the principles are included in a written policy statement. Secondly, it is likely that a centre director, staff (and board or parent committee) that has carefully considered their commitment to inclusion would endorse more than one principle in the centre's written policy statement, resulting in high correlations between the items.

From a measurement perspective, the analysis provided here indicates that dropping any one item in the Principles Scale for the full sample or for the subset of inclusive centres would not lower the reliability of the scale, suggesting that the number of items could be reduced, if desired, for research purposes. On the other hand, experience with the Early Childhood Environment Rating Scale confirms that items that appear on an instrument designed to measure quality have an important educational purpose – one that is important for the early childhood field at this time.

b) The SpeciaLink Practices Profile

Similar procedures to those described above were executed to determine the internal consistency of items comprising the SpeciaLink Inclusion Practices Profile. For accurate interpretation, however, data are presented only for classrooms that included at least one child with identified special needs at the time of the assessment.

Based on the scores from 330 inclusive classrooms, it was found that inter-item correlations ranged from .11 to .61 with an average inter-item correlation of .31. Corrected item-total correlations were all above .30, ranging from .36 (Practice 1: Physical Environment) to .63 (Practice 8: Parents of Children with Special Needs). The median item-total correlation was .51 and the computed Cronbach alpha = .83. These statistics suggest that all the items in this scale contribute to the total/average Practices score and that the internal reliability of the Inclusion Practices Profile is good. The moderate intercorrelations suggest items make distinct contributions. Reliability analyses suggested that dropping any of the 11 items would not improve the overall reliability of the Inclusion Practices Profile.

3.3 Exploratory Factor Analysis

Exploratory factor analysis techniques were used to determine the underlying structure of items when the six Inclusion Principles and 11 Practices items are considered simultaneously. This approach permits an unconstrained exploration of how the 17 items cluster together. Is there justification for two separate instruments? Are there clusters of practices that relate more closely? As suggested by Field (2005), a Maximum Likelihood Procedure was used with Promax Rotation, assuming correlations among factors. Sample adequacy for factor analysis is indicated by the Kaiser-Mayer-Olkin Value (0.924 considered *marvelous*) and Bartlett's test of sphericity (Chi-square [136, N=563] = 5023.37 $p < .001$). The procedure was executed initially for the full sample of classrooms and repeated for the subsample of inclusive classrooms.

a) Exploratory Factor Analysis Based on the Full Sample

Internal consistency was measured with Cronbach's alpha. The value for the full 17 items was 0.911, for the six-item Inclusion Principles scale, 0.908, and for the 11-item Inclusion Practices Profile, 0.855. Factor analysis was conducted using Maximum Likelihood extraction and Promax (oblique) rotation. According to Field (2005), oblique rotation methods such as Promax are appropriate when theory suggests that the factors will be related to some degree. Varimax rotation often is used because it works to make the clusters of factors more interpretable by maximizing the dispersion of loadings within each factor. Oblique methods of rotation, such as Promax, allow for correlation between the factors and, when theoretical grounds suggest that the factors might correlate, then oblique methods of rotation should be used. Initial extraction was for eigenvalues > 1 according to the Kaiser criterion. Items with loadings above 0.3 were retained for each factor. Examination of the eigenvalues and the scree plot suggested a three-factor model that explained 54% of the variance (see Tables 8 and 9). The first factor included the six Principles items and accounted for 41% of variance, the second factor included five Practices items and accounted for 8% of variance, and the third factor included six Practices items and accounted for 5% of variance. The second factor is most strongly represented by the Practices items that relate to Therapies and IPPs, suggesting the extent to which staff focus on individualized approaches to support children's unique needs. This factor also includes practice items related to the encouragement

of social interactions among children with special needs and typically developing children, planning and procedures to ease the transition to school, and parental involvement and support in collaboration with centre staff. The third factor appears to represent the resources available in the centre to support inclusion. These resources include physical accessibility, specialized equipment and materials, and human resources (director's involvement, staff training and staff support, and Board support for inclusion). Principles item 5: Maximum Parent Participation, cross-loaded on factors 1 and 3 and Staff Support (Practices item 4) cross-loaded on factors 2 and 3.

Table 8

Variance in Inclusion Principles and Practices Explained by a 3-Factor Model – All Classrooms

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.43	43.69	43.69	6.95	40.90	40.90
2	1.81	10.67	54.36	1.34	7.89	48.79
3	1.24	7.27	61.63	0.81	4.77	53.55

Table 9

Factor Loadings of a 3-Factor Model – All Classrooms

	Initial 3 Factor Model		
	1	2	3
Principle 2 Natural Proportions	0.839		
Principle 1 Zero Reject	0.825		
Principle 4 Full Participation	0.800		
Principle 3 Same Hours	0.608		
Principle 5 Maximum Parent Participation	0.519		0.324
Principle 6 Leadership, Proactive Strategies	0.429		
Practice 6 Therapies		0.899	
Practice 7 IPPs		0.803	
Practice 11 Transition to School		0.571	
Practice 9 Involvement of Typical Children		0.541	
Practice 8 Parent Involvement		0.514	
Practice 2 Equipment / Materials			0.727
Practice 10 Board of Directors			0.670
Practice 1 Physical Environment			0.618
Practice 5 Staff Training			0.582
Practice 4 Staff Support		0.466	0.474
Practice 3 Director's Role re: Inclusion			0.446
Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.			

We next tested the effect of specifying a two-factor model to see if the result would reflect separate Principles and Practices factors. The two-factor model resulted in a first factor that included all Principles items and Practices 2, 10, 1, 3 and 5 and a second factor that included Practices 6, 7, 11, 9, 8 and 4 (illustrative of the order of factor loadings). This two-factor model accounted for 6 % less variance than the three-factor model and demonstrated les goodness of fit. Consequently the three-factor model is preferred.

b) Exploratory Factor Analysis Based on Scores from Inclusive Classrooms

The same factor analytic procedures were then repeated for the subset of 329 classrooms that included at least one child with special needs for which complete data were available. The initial analysis suggested a three-factor model that accounts for 50% of common variance. In this case, the first factor accounts for 38% of the variance and includes eight items: the six Principles items; Practice 2: Equipment and Materials; and Practice 1: Physical Environment. Factor 2 includes six Practices items: those related to IPPS,

Therapies, Planning for the transition to school, Parental involvement, the Involvement of typically developing children with children with disabilities, and Support for staff. Factor 3 includes only Practice item 10: Board of Directors and Practice item 3: Director's role and accounts for only 4% of common variance. (See Tables 10 and 11.) Somewhat puzzling was the failure of staff training specific to inclusion to load on the first three factors. It may be that the effects of staff training specific to inclusion are better represented by such visible practice items as involvement in developing and implementing IPPs and facilitating social interactions with typically developing children, and/or that in this sample of classrooms there is limited variability in the extent to which early childhood educators have training or educational qualifications specific to inclusion.

Table 10

Variance in Inclusion Principles and Practices Explained by a 3-Factor model in Inclusive Classrooms

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.95	40.89	40.89	6.46	38.03	38.03
2	1.81	10.66	51.55	1.36	7.97	46.00
3	1.12	6.60	58.15	0.71	4.16	50.17

Table 11

Factor Loadings of a 3-Factor Model – Inclusive Classrooms

	3 Factor Model Inclusive Classrooms		
	1	2	3
Principle 1 Zero Reject	0.980		
Principle 4 Full Participation	0.838		
Principle 2 Natural Proportions	0.798		
Principle 3 Same Hours	0.763		
Principle 5 Maximum Parent Participation	0.700		
Practice 2 Equipment / Materials	0.536		
Principle 6 Proactive	0.518		
Practice 1 Physical Environment	0.303		
Practice 7 IPPs		0.878	
Practice 6 Therapies		0.846	
Practice 11 Transition to school		0.509	
Practice 8 Parent Involvement		0.480	
Practice 9 Involvement of typical children		0.425	
Practice 4 Staff Support		0.380	
Practice 10 Board			0.788
Practice 3 Director's role in inclusion			0.763
Practice 5 Staff Training			
Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.			

In summary, exploratory factor analysis techniques applied to both the full sample of classrooms in this study and to the subset of inclusive classrooms suggest that the 17 Inclusion Principles and Practices items reflect three factors that, together, assess inclusion quality..For the total sample, which includes classrooms in centres that did not enrol any children with special needs at the time of assessment, the first factor, which accounted for the majority of explained variance, consists of the six Principles items with one or two of the Practices items. The second factor reflected the involvement of therapists, staff participation in developing and implementing individual program plans, planning for the transition to school, facilitating interactions among children, and parent involvement and support. A third factor represents the physical and material resources available, the board's endorsement of inclusion, staff training related to inclusion, additional staff resources available, and the director's role in promoting and facilitating inclusion in the centre. The cluster of variables that make up this third factor may suggest the degree of capacity and commitment in the

centre – potentially having a threshold effect that may affect the likelihood of regularly enrolling children with special needs.

The analyses based on scores obtained from inclusive classrooms as a separate group suggest a slightly different factor structure, also represented best by a three-factor model. The first factor again focuses on the centre's commitment to inclusion principles and willingness to act to uphold them, and also includes Practices item 1: Accessibility of the physical environment and Practices item 2: Specialized equipment/materials. The second factor focuses on those Practices that reflect individualized intervention, planning for the transition to school, and actions that promote the full participation of children with special needs with their typically developing peers, as well as parent involvement and support. The provision of additional staff resources to support inclusion is related to these aspects and also loads on Factor 2. A third, somewhat unique factor in inclusive classrooms reflects the endorsement of inclusion in the centre by a board of directors or parent advisory committee and the director's active role in promoting inclusion and supporting staff efforts.

For both the larger sample of all classrooms and the more specific sample of inclusive classrooms, however, the use of items that comprise both the Inclusion Principles Scale and the Practices Profile are justified in a composite measure of inclusion quality. Almost all of the items load on the first three factors extracted in the factor analysis and the three-factor models display goodness of fit.

3.4 Confirmatory Factor Analysis

a) Confirmatory Factor Analysis Based on the Full Sample Model

The fit of the recommended three-factor model that emerged from the Exploratory Factor Analysis (EFA) based on all classrooms, including those in centres with no children with special needs enrolled, was evaluated using confirmatory factor analysis (CFA) and ways to improve model fit were explored. The following indicators of model fit were examined: The Tucker-Lewis index (TLI), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), chi-square (χ^2). Values greater than .90 for each of the TLI and the CFI are considered to signify acceptable fit. Models with RMSEA values of .05 or less have good fit; however, RMSEA values of .08 or less are reasonable (Kline,

2005). Although good fitting models will have non-significant ($p < .05$) chi-square values, models with large sample sizes will almost always be statistically significant (Kline, 2005) and do not necessarily indicate a lack of fit. In addition, the critical ratio (CR) of the chi-square statistic divided by the degrees of freedom was determined. Values of 2 or less for the CR are desired and considered to be indicative of reasonable fit (Bollen, 1989). Modifications that were conceptually meaningful were considered. Possible modifications were identified using modification indices in the structural modelling program AMOS. For the purpose of improving the models through the use of modification indices, a dataset was created that excluded all cases with any missing data ($n = 563$). In each case, CFAs were initially conducted using classrooms in centres from the reduced dataset that included children with special needs ($n = 408$) and then the final models were run with the full dataset to determine the adequacy of model fit.

The initial model (denoted Version 1) did not demonstrate adequate fit (Table 12). An examination of the modification indices led to two model modifications. The first modification involved correlating the residual terms for two Practice scale items, Practice 3 (Director's role) and Practice 10 (Board of directors or advisory committee). These items are conceptually related and the modification resulted in a significant improvement in model fit (Version 2). The second modification involved correlating the residual terms for one Practice scale item (Practice 3, Director's role) and one Principles scale item (Principle 6, Leadership, pro-active strategies and advocacy for high quality, inclusive child care). The items were also deemed to be closely related and the modification resulted in a significant improvement in model fit (Version 3). (The final Full Sample Model is included in Appendix C.)

Table 12:

Full Sample Model Modifications – Change in Goodness-of-Fit Tests

Model Description	TLI	CFI	RMSEA	χ^2	df	CR (χ^2/df)	$\Delta\chi^2$ (Δdf)	Significance
Version 1	.87	.89	.09	468.66	114	4.11	---	---
Version 2	.88	.90	.08	438.39	113	3.88	30.27 (1)	$p < .001$
Version 3	.88	.91	.08	418.59	112	3.74	19.80 (1)	$p < .001$

When evaluated using the full dataset for all classrooms in centres including a child with special needs ($n = 422$), the final model also demonstrated good fit (χ^2 (112) = 430.51, $p <$

.001; χ^2/df = 3.84; TLI = .87; CFI = .91; RMSEA = .08). This model demonstrated even better fit when evaluated with the full sample of classrooms including a child with special needs (n = 332, χ^2 (112) = 319.63, p < .001; χ^2/df = 2.85; TLI = .89; CFI = .92; RMSEA = .08). In the final model (Version 3) all of the unstandardized regression weights and covariances were significant (p < .05) with the exception of the two cross loadings, Factor 3 → Principle 4 and Factor 2 → Principle 5. The model was evaluated removing these cross-loadings, but the removal was detrimental to model fit and the decision was made to include the cross-loadings in the final model. For the sample of classrooms in centres including children with special needs, standardized regression weights (factor loadings – the amount of variance in the variable that is accounted for by the factor) ranged from .02 to .89 and squared multiple correlations (the amount of variance in the variable that is accounted for by the model) ranged from .24 to .70. For the sample of inclusive classrooms, standardized regression weights ranged from .04 to .82 and squared multiple correlations ranged from .24 to .68.

b) Confirmatory Factor Analysis Based on Inclusive Classrooms

Using the results of the EFA derived from the analysis based only on inclusive classrooms, the fit of the three-factor model was evaluated and ways to improve model fit were explored. The initial model (denoted Version 1) was found to demonstrate adequate fit (Table 13); however an examination of the modification indices led to three model modifications. The first modification involved correlating the residual terms for two Practice scale items, Practice 1 (Accessibility of the physical environment) and Practice 2 (Equipment and materials). These items are conceptually related and the modification resulted in a significant improvement in model fit (Version 2). The second modification involved correlating the residual terms for two Practice items, Practice 6 (Therapies) and Practice 7 (Individual Program Plans). These items were also deemed to be related and the modification resulted in a significant improvement in model fit (Version 3). The final modification involved correlating the residual terms for one Practice scale item (Practice 3, Director's role) and one Principles scale item (Principle 6, Leadership, pro-active strategies and advocacy for high quality, inclusive child care). This modification also resulted in a

significant improvement in model fit (Version 4). (The final Inclusion Model is included in Appendix D.)

Table 13:

Inclusion Model Modifications – Change in Goodness-of-Fit Tests

Model Description	TLI	CFI	RMSEA	χ^2	df	CR (χ^2/df)	$\Delta\chi^2$ (Δdf)	Significance
Version 1	.89	.91	.08	383.93	101	3.80	---	---
Version 2	.90	.92	.08	358.32	100	3.58	25.61 (1)	$p < .001$
Version 3	.92	.93	.07	319.04	99	3.22	39.27 (1)	$p < .001$
Version 4	.92	.93	.07	301.56	98	3.08	17.48 (1)	$p < .001$

This model demonstrated the best fit when evaluated with the full sample of classrooms including a child with special needs (n = 332, χ^2 (98) = 253.39, $p < .001$; χ^2/df = 2.59; TLI = .91; CFI = .94; RMSEA = .07). All of the unstandardized regression weights and covariances were significant ($p < .05$) in the final inclusion model. For the sample of classrooms in centres including children with special needs, standardized regression weights ranged from .41 to .83 and squared multiple correlations ranged from .17 to .69. For the sample of classrooms including children with special needs, standardized regression weights ranged from .44 to .82 and squared multiple correlations ranged from .19 to .68.

Discussion of CFA Analyses

Confirmatory factor analysis of the selected factor structures demonstrated acceptable fit with the data. A few modifications were made to each model resulting in significant improvements in model fit. Overall, the inclusion model (the model based on inclusive classrooms) demonstrated better fit for both groups evaluated, classrooms in centres that had children with special needs but did not have a child with special needs in that particular classroom and classrooms that included children with special needs. These results provide support for the utility and appropriateness of the SpeciaLink Child Care Inclusion Practices Profile and Principles Scales for assessing inclusion quality in early learning and child care environments in Canada. The two measures cover three clusters of items that reflect a) the extent to which classrooms are located in centres that have explicitly considered principles for inclusion practice and are capable of welcoming children with diverse abilities in an

accessible environment with a range of materials and equipment; b) specific practices that ensure the successful inclusion of individual children through therapies and individual program plans, collaboration with professionals and parent support in an environment that supports the social inclusion and interaction among children with special needs and their typically developing peers; and c) the extent to which directors take on an active role in supporting inclusion, supported by a board of directors or parent advisory committee.

3.5 Initial Evidence for the Validity of the Inclusion Principles Scale and Practices Profile

The analyses presented thus far demonstrate major differences in scores obtained on each Inclusion Principles item and Average Inclusion Principles Scale scores when classrooms in inclusive centres are compared to classrooms in centres that do not have any children with special needs enrolled. In addition, there are highly statistically significant differences in the scores obtained on each Inclusion Practice item and on the Average Inclusion Practices Profile score when inclusive classrooms are compared to classrooms that do not have any children with special needs. This constitutes prima facie evidence of validity of these two measures.

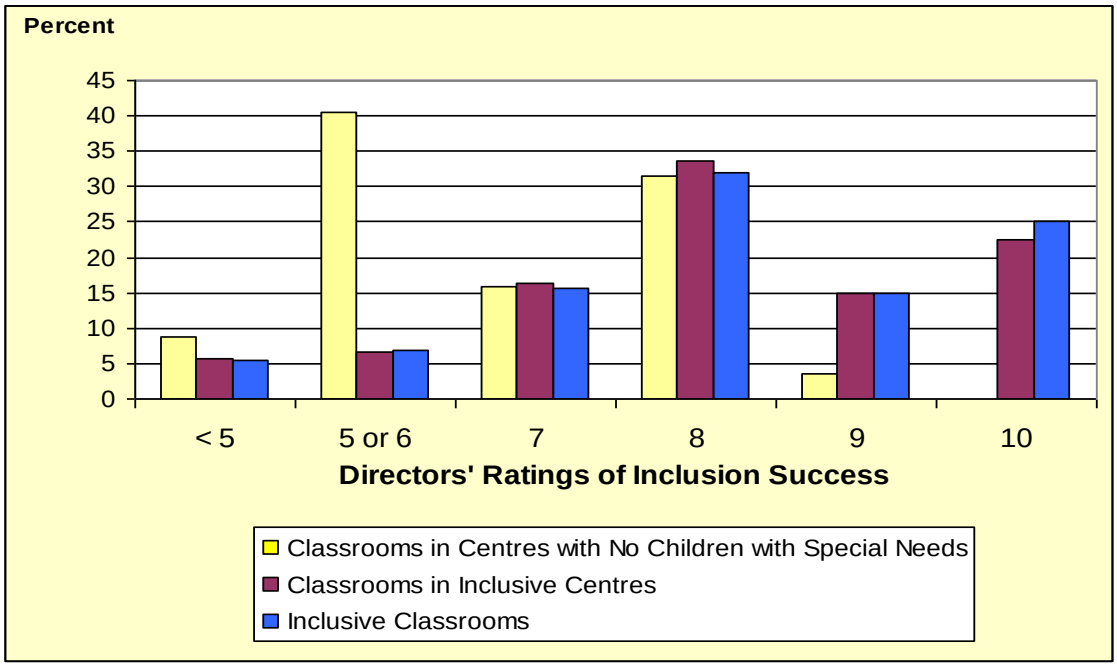
There was no other external measure of inclusion quality obtained that could serve as a validity check. However, supplemental data were available from brief questionnaires completed by centre directors for 257 classrooms, usually at the time when a first assessment was made. The questionnaires provided descriptive information about the centre, information about the centre's inclusion history, and the director's own assessment of how well the centre was doing in providing inclusive care in the community, as well as her views of the centre's strengths and challenges.

The director's own rating of how well the centre was doing in providing inclusive care in the community (on a scale of 1-10) was used as an imperfect, but relevant external criterion for further investigation. The approach taken was to determine whether scores on the Inclusion Principles and Practices items could account for substantial variation in the directors' ratings. Further investigation considered whether predictions based on Principles and Practices scores were differentially effective as predictors of directors' ratings for the subsample of inclusive classrooms. Directors' ratings of their centre's effectiveness ranged from 2 to 10. Analyses

indicated little difference in the ratings obtained for inclusive classrooms and classrooms that did not enrol any children with special needs, but were located in inclusive centres. This was not unexpected, since directors were referring to their centre as a whole when providing a rating. The mean rating for classrooms in centres with no children with special needs enrolled at the time of assessment was 6.4 (s.d. = 1.60); the average rating for classrooms in inclusive centres was 8.1 (s.d. = 1.61). As shown in Figure 3, less than 12% of directors' ratings were in the low range of 6 or less in the latter case, compared to 49% of classrooms in centres that did not enrol any children with special needs. Ratings of 9 or 10 were very rare when no children with special needs were enrolled, but constituted almost 38% of directors' ratings for classrooms in inclusive centres.

Figure 3

Directors' Rating of Their Centre's Inclusion Success for Classrooms in Centres with No Children with Special Needs Enrolled, for Classrooms in Inclusive Centres and for Inclusive Classrooms



N = 57 classrooms in centres with no children with special needs, N = 208 classrooms in inclusive centres including the subset of 147 inclusive classrooms

Sequential regression procedures were then conducted to determine whether average Inclusion Principles and average Inclusion Practices scores predicted directors' ratings of inclusion success. Sequential regression was used to determine whether the Practice scores

improved prediction over and above the contribution of average Principle scores. (Using the Principles score first was warranted by the fact that Principles scores loaded on the first factor in factor analyses presented in the previous section.) In order to meet regression assumptions, regressions were performed for all classrooms, classrooms in inclusive centres and inclusive classrooms. Average Principles scores and average Practices scores were moderately correlated with directors' ratings and were highly correlated with each other. Tolerance and VIF values were within an acceptable range (ranging from 0.361 to .422), indicating that multicollinearity was not a problem. Correlations among variables, means, and standard deviations are shown in Table 14 for the full sample, for classrooms in inclusive centres, and for inclusive classrooms.

Table 14

Correlations and Descriptive Information: Directors' Ratings, Average Principles and Average Practices Scores for Three Comparisons

Correlations and Descriptive Information for Variables

Variables	Director's Rating of Inclusion Success	Average Principles	Average Practices
All Classrooms			
Average Principles	0.56		
Average Practices	0.54	0.80	
Means	7.65	4.19	3.42
Std. Dev.	1.85	1.23	1.19
Classrooms in Inclusive Centres			
Average Principles	0.56		
Average Practices	0.45	0.75	
Means	8.07	4.49	3.76
Std. Dev.	1.65	1.16	1.06
Inclusive Classrooms			
Average Principles	0.63		
Average Practices	0.57	0.76	
Means	8.10	4.56	3.91
Std. Dev.	1.70	1.16	1.05

Final regression models for the full sample and subgroups are summarized in Table 15 showing unstandardized Betas with standard error, standardized Betas, incremental semi-partial correlations (sr_i^2), R, R^2, and F values after inclusion of both average Principles scores

and average Practices Scale scores. Using both Average Principles and Average Practices scores accounted for 33% of the adjusted variance in directors' ratings of inclusion success for the full sample of classrooms, 31% in classrooms in inclusive centres, and 41% of the variance in the subsample of inclusive classrooms. These results indicate that average Principles and Practices scores, when combined, are better predictors of the directors' ratings of inclusion success when there is a child with a disability in the classroom than in more diverse samples. In all cases the semi-partial correlations or unique additional variance accounted for by the average Practices score was minimal, ranging from 0.2% to 2.6%. The change in the F ratio, $F_{inc,}$ was not significant at the $p < .001$ level for any of the models,[1] suggesting that the addition of the Average Practices score in the equations did not improve prediction of directors' ratings over and above average Principles Scores. This does not mean that Practices do not contribute to inclusion success. A more prudent interpretation is that since the director's rating is a fairly global, subjective measure and pertains more to the overall centre's functioning, ratings more closely align with the more general Principles measure than with the specifics of the Inclusion Practices items. As well, the Practices scores more directly reflect the circumstances observed in one classroom at a particular point in time, while the Principles measure pertains to an on-going set of inclusion principles and experiences that pertain to the centre as a whole.

[1] Full Sample F_{inc} (1,248) = 9.77 p=0.002; Child with Special Needs in Centre F_{inc} (1,194) = 0.70 p=.404; Child with Special Needs in the Classroom F_{inc} (1,143) = 4.95 p=.028.

Table 15

Summary of Sequential Regression: Effects of Average Inclusion Principles and Practices Scores as Predictors of Directors' Ratings of Their Centre's Success in Including Children with Special Needs

Variables	Unstandardized Beta (*B*)	SE *B*		Standardized Beta (β)	sr^2 (incremental)
All Classrooms (N= 251)					
Average Principles	0.518	0.129	**	0.344	0.312
Average Practices	0.419	0.134	*	0.269	0.026
Model R=0.58, R^2 = 0.34, (adjusted R^2 = 0.33) F(2,248) = 63.43, p<.001)					
Classrooms in Inclusive Centres (N = 197)					
Average Principles	0.724	0.127	**	0.508	0.318
Average Practices	0.116	0.139		0.075	0.002
Model R=0.57, R^2 = 0.32, (adjusted R^2 = 0.31) F(2,194) = 45.76, p<.001)					
Inclusive Classrooms (N = 146)					
Average Principles	0.684	0.143	**	0.469	0.403
Average Practices	0.351	0.158	*	0.218	0.020
Model R=0.65, R^2 = 0.42, (adjusted R^2 = 0.41) F(2,143) = 52.38, p<.001)					

** p <.001
* p < .05

CONCLUSIONS

The main purpose of this study was to examine the internal reliability and structural properties of the SpeciaLink Inclusion Principles Scale and Inclusion Practices Profile – two new measures to assess inclusion quality in early childhood programs, and provide some initial evidence of their validity. Reliable and valid measures of inclusion quality are required for a variety of purposes, especially for monitoring the extent to which current policies, practices and supports ensure that children with special needs, when present in early learning programs, have the opportunity to fully benefit from their participation.

Inclusion Principles and Practices scores were available from almost 600 classrooms drawn from a purposive, voluntary sample of 216 child care centres and preschool programs across Canada. The data were obtained often as part of ongoing initiatives to improve program quality and enhance inclusion effectiveness, with observations scored by assessors who were trained for this purpose. Analyses were performed and comparisons made, when appropriate a) between classrooms in inclusive centres and classrooms in centres that did not have any children with special needs enrolled, and b) between inclusive classrooms (n=330) and those that did not include any identified children with special needs at the time of assessment.

Analyses supported the following conclusions:

1. The SpeciaLink Inclusion Principles Scale assesses the extent to which early learning programs have consciously adopted a set of principles that reflect a strong commitment to include all children in the community, to ensure their full participation in the program, and to support their parents as full partners. Significantly higher average scores were obtained on each Principles item and on the average score on the Inclusion Principles Scale for classrooms located in inclusive centres compared to classrooms in centres that did not enrol any children with special needs. The largest difference between these groups was evident for the principle that reflects leadership, proactive strategies and advocacy for inclusion, confirming the importance of the director's role as an inclusion leader for programs adopting and maintaining a strong inclusion mandate for their centre.
2. The SpeciaLink Inclusion Practices Profile assesses the extent to which physical and human resources are in place and parents, staff, and external professionals work together to ensure that each child's individual needs are met, while promoting full participation

and positive social interactions within an early learning program. There were highly significant differences observed between inclusive classrooms and those that did not include any children with special needs on each individual Practices item and on the overall Inclusion Practices Profile score.

3. Inclusive classrooms had an average Inclusion Practices Profile score of 3.88 on a 7 point scale, indicating room for improvement. Median scores of 5.0, indicative of a 'good' score were observed for three inclusion practices: Therapies (the provision of therapeutic interventions and collaborative involvements between staff, parents and therapists); Parent Involvement; and the Involvement of typically developing children with children with special needs. These three practice areas can be considered areas of strength in this sample of inclusive classrooms. Practice items with the lowest average scores were obtained for Practice 2: Equipment/materials (reflecting the extent to which adaptations have been made and special equipment and materials are available and used to enhance skills and support full participation) and Practice 10: Board of directors or advisory committee. In the latter case, a board of directors or parent advisory committee is lacking to support inclusion or, if present, does not actively promote and support inclusion policies and practices.
4. Both the SpeciaLink Inclusion Principles Scale and the Inclusion Practices Profile evidenced high internal reliability – each item contributed significantly to the total scale score and Cronbach alpha coefficients were calculated to be .91 and .83 for the Principles Scale and Practices Profile, respectively.
5. Exploratory and Confirmatory Factor Analysis supports the use of both instruments in assessments of inclusion quality. When computed based on scores from the full sample of classrooms, including those in centres with no children with special needs enrolled at the time of assessment, a three-factor model emerged that accounted for 54% of common variance. The first factor consists of the six Principles items, the second included five Practice items that best reflect the extent to which staff focus on individualized approaches to support children's unique needs, and the third represents the physical and human resources available in the centre (including support by a Board) to support effective inclusion. Factor analysis based only on scores obtained for inclusive

classrooms also resulted in a three-factor model that accounted for 50% of the variance. The first factor included eight items: the six Principles and the two Practice items that relate to an accessible environment and to adaptations and the use of specialized equipment and materials. The second factor represents six Practice items that relate most closely to practices that support meeting the individual needs of each child using IPPs and collaborations between staff, parents and specialists. The third factor that emerged for inclusive classrooms consists of the two practice items that focus on a board of directors and the director's active role in supporting staff and promoting effective inclusion. Confirmatory factor analysis revealed good model fit following some minor modifications.

6. Evidence for the validity of the SpeciaLink Inclusion scales is manifest in the pattern of highly significant and meaningful differences in Principles scores that were observed in comparisons between classrooms from inclusive centres and classrooms from centres that did not enrol any children with special needs. Similarly, there were highly significant differences that emerged in comparisons between inclusive classrooms and classrooms that did not include any children with special needs on each Inclusion Practice item and on average Inclusion Practices Profile scores. Finally, average Principles and Practices scores correlated significantly with directors' own ratings of how well they feel their centre is doing in providing inclusive care in the community. Statistical procedures suggested that directors' ratings could be predicted based on either average Principles scores or average Practices scores, but were most closely related to Principles scores.

In summary, this report provides strong evidence for the utility and reliability of both SpeciaLink Inclusion measures when used together to assess inclusion quality in early childhood programs. In addition, the validity of both measures is supported. Scores on the SpeciaLink Inclusion Principles scale discriminate effectively between classrooms in inclusive centres and classrooms in centres that do not include any children with special needs. Scores on the Inclusion Practices Profile strongly discriminate between inclusive classrooms and classrooms that do not have any children with identified special needs. Both measures predict directors' global ratings of their centre's effectiveness in including children with special needs.

4.1 Implications for Research

There are a variety of important research questions that could be addressed in studies using reliable and valid measures of inclusion quality. Previous research on early childhood education and care programs in Canada and the U.S. have identified the importance of a number of factors that are important for effective inclusion (director's leadership, early childhood educators' formal training and access to professional development specific to inclusion, collaborative relationships with community professionals, funding that provides additional staff support). As well, Irwin, Lero & Brophy (2000, 2004) have affirmed the importance of using a dynamic perspective to assess factors associated with positive and regressive changes in centres' and staff's commitment to inclusion and their effectiveness in meeting the needs of children with a range of special needs. The use of reliable and valid inclusion quality scales could help clarify how factors operate individually and in combination in centres and classrooms that differ in inclusion quality.

Secondly, it is important to assess the effects of participating in high quality, inclusive programs for children with special needs. Requirements for accountability studies in the U.S. under the IDEA include identification of child outcomes resulting from participation in inclusive early childhood settings. Measures of inclusion quality are critical for such research. Longitudinal research in the early intervention literature in the U.S. suggests that positive effects of high quality early intervention programs for young children include reduced incidences of grade retention and fewer placements in segregated special needs classes. In the Canadian context, it would be useful to know if children with special needs who participate in high quality inclusive programs evidence such measurable long-term effects and/or if they are better able to succeed in the first few years of school with less intensive therapeutic supports.

Research could also explore the effects on staff and on parents of participating in early childhood programs that manifest higher inclusion quality. Staff effects could be assessed through attitudinal measures and impacts on the acquisition of a variety of skills. Longer-term impacts might include job satisfaction, reported self-efficacy in working with children with special needs, and retention rates. Impacts on parents of children with special needs attending inclusive programs could be assessed, including parenting efficacy, stress, and

measures of social support. On a community level, assessments could also be made of the effects of higher inclusion quality on the number and nature of children with special needs who are referred to and supported to participate in early childhood programs. In any of these research activities, it is recommended that the SpeciaLink Inclusion measures be administered in combination with other well-recognized measures of program quality and that consideration be given to exploring the experiences of individual children with different needs and different requirements for support.

4.2 Implications for Policy and Practice

Reliable and valid measures of inclusion quality can also be used to assess the effectiveness of interventions aimed at improving inclusion quality in early childhood programs and as useful tools to develop program standards for the profession. Knowledge about inclusion quality and its components should be included in both pre-service professional education and in specialized programs for centre directors and for early childhood professionals employed in community-based resource programs that provide ongoing professional development and on-site supports. As Buysse et al. (2001) have noted, research on dimensions of inclusion quality can contribute to our understanding of this phenomenon and ultimately to the development of professional standards.

Finally, policy makers at the local, provincial, and federal level require tools to determine if early learning programs are providing the quality of programs young children need and deserve and have a duty to use public funds wisely. Reliable and valid measures can contribute to public accountability for investments in programs and indicate where improvements are needed. Data can also be used to determine if current methods of supporting inclusion in child care programs require improvement and suggest what kinds of additional supports are needed. Finally, programs that provide high quality inclusive education and care should be used as exemplars for others, providing opportunities for mentoring and further model development.

End Notes

These initiatives included Partnerships for Inclusion-Nova Scotia, Keeping the Door Open in New Brunswick, Making Improvements in Kids' Environments (MIKE) in Prince Edward Island, Quality First in Halton Region, Ontario, Community Living Manitoba's Inclusive Child Care Capacity Building Project (IC3BP), and similar initiatives in Newfoundland and Labrador. Data collected by the City of Toronto were used to assess the effects of a change in how resources to support inclusive centres were allocated, and consisted of pre and post-change assessments.

REFERENCES

Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications.* Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved June 29, 2009 from http://epicpolicy.org/publication/preschooleducation

Bollen, K. A. (1989). *Structural equations with latent variables.* New York: John Wiley and Sons.

Bricker, D. (2000). Inclusion: How the scene has changed. *Topics in Early Childhood Special Education, 20,* 14-19.

Bruder, M. (1993). The provision of early intervention and early childhood special education within community early childhood programs: Characteristics of effective service delivery. *Topics in Early Childhood Special Education, 13* (1), 19-37.

Burchinal, P. (Manuscript submitted for publication). Differentiating among measures of quality: Key dimensions and their coverage in existing measures. Cited in Child Trends Issue Brief: *What We Know and Don't Know About Measuring Quality in Early Childhood and School-Age Care and Education Settings*. May 2009, Publication #2009-12. OPRE Issue Brief #1. Washington D.C. Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Burchinal, M. R., & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. *Early Childhood Research Quarterly, 18,* 401–426.

Buysse, V. and Hollingsworth, H. L. (2009). Program quality and early childhood inclusion recommendations for professional development. *Topics in Early Childhood Special Education,* Volume XX Number X, 1-10.

Buysse, V., Skinner, D., & Grant, S. (2001). Toward a definition of quality inclusion: Perspectives of parents and practitioners. *Journal of Early Intervention, 24,* 146-161.

Buysse, V., Wesley, P. W., Bryant, D., & Gardner, D. (1999). Quality of early childhood programs in inclusive and noninclusive settings. *Exceptional Children, 65,* 301-314.

Canadian Child Care Federation. (2007). *National Statement on Quality Early Learning and Child Care.* Ottawa. http://www.cccf-fcsge.ca/practice/practice_en.html

Canadian Council on Learning. "State of Learning in Canada: Toward a Learning Future," *Report on Learning in Canada 2008* (Ottawa: 2008). Chapter 1: Learning in the Early Childhood Years (pp. 36-56). Available at http://www.ccl-cca.ca/NR/rdonlyres/6FA0A21C-50D9-481B-A390-73852B4E6CB6/0/SOLR_08_English_final.pdf

Cassidy, D. J., Hestenes, L. L., Hegde, A., Hestenes, S. & Mims, S. (2005). Measurement of quality in preschool child care classrooms: An exploratory and confirmatory factor analysis of the early childhood environment rating scale – revised. *Early Childhood Research Quarterly, 20,* 345-360.

Child Care Human Resources Sector Council. (2006). *Occupational standards for child care administrators*. http://www.ccsc-cssge.ca/english/pdf/research/2006/CCHRSC_FinalProof.pdf

Child Care Law Center (2004). *All Children Have Individual Needs. Building an Inclusive Preschool for All – Program Principles and Considerations for Planning and Implementation*. Report of a roundtable to inform policy planning.

Council for Exceptional Children, the Division for Early Childhood (DEC). (2007). *Promoting positive outcomes for children with disabilities: Recommendations for curriculum, assessment and program evaluation*. http//www.dec-sped.org.

DEC/NAEYC. (2009). *Early childhood inclusion: A joint position statement of the Division for Early Childhood (DEC) and the National Association for the Education of Young Children (NAEYC).* Chapel Hill: The University of North Carolina, FPG Child Development Institute. http://www.dec-sped.org/uploads/docs/about_dec/position_concept_papers/PositionStatement_Inclusion_Joint_updated_May2009.pdf

Doherty, G. (2003). *Occupational standards for child care practitioners*. Ottawa: Canadian Child Care Federation. http://www.ccsc-cssge.ca/english/pdf/resources/occupational-final-e.pdf

Doherty, G., Lero, D. S., Goelman, H., LaGrange, A. & Tougas, J. (2000) *You Bet I Care! A Canada-wide study on wages, working conditions, and practices in child care centres*. Guelph, ON: Centre for Families, Work and Well-Being. www.worklifecanada.ca

Field, A. (2005). *Discovering Statistics using SPSS*, 2nd edition. Thousand Oaks, CA: Sage Publications, Inc.

Friendly, M. & Lero, D.S. (2005). "Social inclusion through early childhood education and care." In T. Richmond & A. Saloojee (eds.) *Social Inclusion: Canadian Perspectives.* Halifax: Fernwood Publishing.

Goelman, H., Doherty, G., Lero, D.S., LaGrange, A. & Tougas, J. (2000). *You Bet I Care! -- Caring and learning environments: Quality in child care centres across Canada.* ON: University of Guelph: (Centre for Families, Work and Well-Being). Available at http://worklifecanada.ca

Government of Canada (2007). *The well-being of Canada's young children*. Government of Canada report 2006. http://www.socialunion.gc.ca/well_being/2007/en/well_being.pdf

Guralnick, M. (1993). Foreword. In C.A. Peck, S. L. Odom, & D. D. Bricker (Eds.), *Integrating young children with disabilities into community programs: Ecological perspectives on research and implementation*. Baltimore: Paul H. Brookes.

Harms, T., Clifford, R.M., & Cryer, D. (1998). *Early Childhood Environment Rating Scale - revised edition (ECERS-R).* N.Y.: Teachers College Press, Columbia University.

Howes, C. (2003). "The impact of child care on young children (0-2)" in R.E. Tremblay, R.G. Barr & R. DeV. Peters. (Eds.) *Encyclopaedia on Early Childhood Development* [online] (Montreal: Centre of Excellence for Early Childhood Development, Nov. 19 2003. Available at www.child-encyclopedia.com

Individuals with Disabilities Education Act Amendments. (2004). 20 U.S.C. 1400 et seq. http://idea.ed.gov/explore/view/p/%2Croot%2Cstatute%2C

Irwin, S. H. (1993). *Integration of children with disabilities into daycare and after-school programs.* A report submitted to the Welfare Grants Division, Canada Department of Health and Welfare. Available from www.specialinkcanada.org

Irwin, S. H. (2005). *SpeciaLink Child Care Inclusion Practices Profile and Principles Scale*. SpeciaLink — The National Centre for Child Care Inclusion. http://www.specialinkcanada.org/home_en.html

Irwin, S. H., Lero, D. S. & Brophy, K. (2000). A *Matter of Urgency: Including Children with Special Needs in Child Care in Canada.* Wreck Cove, Nova Scotia: Breton Books. Available at http://www.specialinkcanada.org

Irwin, S. H., Lero, D. S. & Brophy, K. (2004). *Inclusion: The Next Generation in Child Care in Canada*. Wreck Cove, Nova Scotia: Breton Books. Available at http://www.specialinkcanada.org

Johnson, L., Johnson, P., MacMillan, R. P. & Rogers, C. (1993). *EC-SPEED: Early childhood special education program design and evaluation guide*. OH: The Ohio Department of Education and the North central Ohio Special Education Regional Resource Center.

Killoran, I., Tymon, D. & Frempong, G. (2007). Disabilities and inclusive practices within Toronto preschools. *International Journal of Inclusive Education. 11,* 81-95.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford.

Lamb M. (1998). Non-parental child care: Context, quality, correlates, and consequences. In: I. Sigel I & K. Renniger (eds.) *Handbook of child psychology: Vol. 4. Child psychology in practice*. 5th ed. New York, NY: Wiley. Pp 73-134.

Lero, D. S. & Irwin, S. H. (2008). *Improving quality, Enhancing inclusion: Partnerships for Inclusion ~ Nova Scotia.* Guelph, ON: Centre for Families, Work and Well-Being, University of Guelph. Available at http://www.specialinkcanada.org

Loeb, S., Fuller, B., Kagan, S. L. & Carrol, B. (2004). Child care in poor communities: early learning effects of type, quality and stability. *Child Development, 75* (1), 47-65.

McCartney, K. (2004). Current research on child care effects. In: R.E. Tremblay, R.G. Barr & R. DeV. Peters (Eds.) *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development; 2004:1-5. Available at: http://www.child-encyclopedia.com/ documents/McCartneyANGxp.pdf. Accessed June 20, 2009.

McCartney, K., Dearing, E., Taylor, B.A., & Bub, K.L. (2007). Quality child care supports the achievement of low-income children: Direct and indirect pathways through caregiving and the home environment. *Journal of Applied Developmental Psychology, 28*, 411-426.

National Professional Development Center on Inclusion. (2009). *Why program quality matters for early childhood inclusion: Recommendations for professional development.* Chapel Hill: The University of North Carolina, FPG Child Development Institute, Author. Available at http://community.fpg.unc.edu/resources/articles/npdci-quality-paper/view

Odom, S. L. (Ed.). (2002). *Widening the circle: Including children with disabilities in preschool programs*. NY: Teachers College Press.

Organization for Economic Co-operation and Development. [OECD] (2006). *Starting Strong II: Early Childhood Education and Care*, Paris, France: OECD Publishing, UK.

Peisner-Feinberg, E.S., & Burchinal, M.R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes Study. *Merrill-Palmer Quarterly, 43*(3), 451-477.

Shaw, P., Santos, S., Cohen, A., Araki, C., Provance, E., & Reynolds, V. (2001). *Barriers to Inclusive Child Care: Executive Summary of Research Study Findings and Recommendations.* Sacramento: California Children and Families Commission

Statistics Canada. Social and Aboriginal Statistics Division (2008). *Participation and Activity Limitation Survey 2006: Families of Children with Disabilities in Canada*. Minister of Industry. Catalogue no. 89-628-X no. 009.

United Nations Educational Scientific and Cultural Organisation. (2009). *Inclusion of Children with Disabilities: The Early Childhood Imperative.* UNESCO Policy Brief on Early Childhood N° 46. http://unesdoc.unesco.org/images/0018/001831/183156E.pdf

VanRaalte (Mitchell) D. L. (2001). *Keeping the door open: Enhancing and maintaining the capacity of centres to include all children.* Available from the New Brunswick Association for Community Living *http://www.nbacl.nb.ca/english/resources/books_videos.asp*

Wolery, M. (2007). *Conditions necessary for desirable outcomes in inclusive classrooms.* National Early Childhood Technical Assistance Centre. http://www.nectac.org/inclusion/research/RS_conditions.sap?text=1

Wolery, M., Pauca, T., Brashers, M. S., & Grant, S. (2000). *Quality of Inclusive Experiences Measure (QuIEM).* Unpublished manuscript.

APPENDIX A

Sample items from the SpeciaLink Inclusion Principles and Practices Scales

Principle 1: Zero Reject.

In fully inclusive child care centres, *all* children are welcome, regardless of type or level of disability. Many child care centres that are referred to as "inclusive" actually integrate only children with mild to moderate disabilities, or children with a single disability. Children who are not toilet-trained, who are not ambulatory, who have behavioural disorders, or who have special health care needs, are most likely to be excluded. (Read this statement to Director as you begin to discuss Principle #1 in a non-judgmental tone. Then use probe questions, as necessary, and record comments.

Some probe questions: (1) Have you, or would you be, unable to accept children with any particular level or type of disability? If "yes," what type of disability(ies) or level(s) are these? (2) Children with what disabilities and levels of disability (mild/moderate/severe/profound) have you been able to accommodate in your centre? Record as "comment."

Score: 1 2 3 4 5 6 7

Inadequate 1	Minimal 3	Good 5	Excellent 7
1.1 ❑Y ❑N Director describes previous and present inclusion of children with disabilities in terms of very subjective criteria, such as "very nice parent," "seemed easy to include," "we were forced to."	**3.1 ❑Y ❑N** Director specifies some* types and levels of disability that the centre can accommodate.	**5.1 ❑Y ❑N** Director specifies many* types and levels of disability that the centre can accommodate.	**7.1 ❑Y ❑N** Director specifies that the centre will enroll children with all levels and types of disability—actively following the principle of zero reject,
1.2 ❑Y ❑N Lead ECE is not aware of previous or present enrollment of children with disabilities in her classroom.	**3.2 ❑Y ❑N** Lead ECE is aware of previous or present enrollment of some* children with disabilities in her classroom.	**5.2 ❑Y ❑N** Lead ECE is aware of many* children with disabilities, previously and presently enrolled, including some specifics about accommodations and modifications made to include them.	**7.2 ❑Y ❑N** Lead ECE, another ECE, a support staff (such as secretary or cook), and a parent*** all articulate zero reject principle as their own and as the centre's.
1.3 ❑Y ❑N The centre has no written or verbal policy on inclusion.	**3.3 ❑Y ❑N** The centre has an informal policy on inclusion (evidenced by Director's comments and supported by such evidence as accessible materials on diversity including pictures, books, dolls with disabilities, or by the presence of information and training opportunities on inclusion being available to staff).	**5.3 ❑Y ❑N** The centre has a written policy statement that supports inclusion.	**7.3 ❑Y ❑N** The centre has a written inclusion policy statement that affirms the zero reject principle, with a phrase such as "*all* children."

* "Some" means three or fewer; "Many" means four or more.
** "Types of disability" refers to diagnosis, such as autistic, intellectual, physical, visual, auditory. "Levels" refers to intensity, such as mild, moderate or severe.
*** "A parent" means the first parent (or close family member) of a child with special needs whom you see—in locker room, at arrival or departure, or identified through probe question.

Comments: _____

Practice 9: Involvement of Typical Children.

Note frequency and intensity of play that involves children with special needs and typically developing children — especially in housekeeping area, block area, and out of doors, during free play times.

Score: 1 2 3 4 5 6 7

Inadequate 1	Minimal 3	Good 5	Excellent 7
1.1 ❑Y ❑N Typically developing children rarely interact with children with special needs. **1.2** ❑Y ❑N Staff take no active role in encouraging social inclusion. **1.3** ❑Y ❑N Competition is used frequently to motivate children to perform.	**3.1** ❑Y ❑N Typically developing children sometimes* interact with children with special needs in group social play situations. (That means that during at least 25% of the time when children with special needs are in group play situations such as the Dramatic Play area and the Block area, they are not ignored and left out of the play, **3.2** ❑Y ❑N Staff make comments or gestures to promote social inclusion. **3.3** ❑Y ❑N Cooperation is motivated occasionally, by adult requests.	**5.1** ❑Y ❑N Children with special needs are often*included in group social play. **5.2** ❑Y ❑N Staff suggest appropriate roles or dramatic situations that are inclusionary. **5.3** ❑Y ❑N Cooperation is stressed, through planned activities that require more than one child to accomplish.	**7.1** ❑Y ❑N Children with special needs are included in group social play most of the time*. **7.2** ❑Y ❑N Staff systematically use techniques of scripting, cooperative learning, valued object sharing, etc., to promote social inclusion. **7.3** ❑Y ❑N Staff receive specific training in promotion of inclusive social play. **7.4** ❑Y ❑N Cooperation is motivated frequently by adult verbal statements and by activities that need more than one child to accomplish.

* "Sometimes" means 25% of the time; "Often" means 50% of the time; "Most of the time" means over 75% of the time.

Comments: _____

Appendix B

Table B-1

Descriptive Statistics on Item and Average Scores for the SpeciaLink Inclusion Principles Scale for Classrooms in Inclusive Centres and in Centres without Children with Identified Special Needs

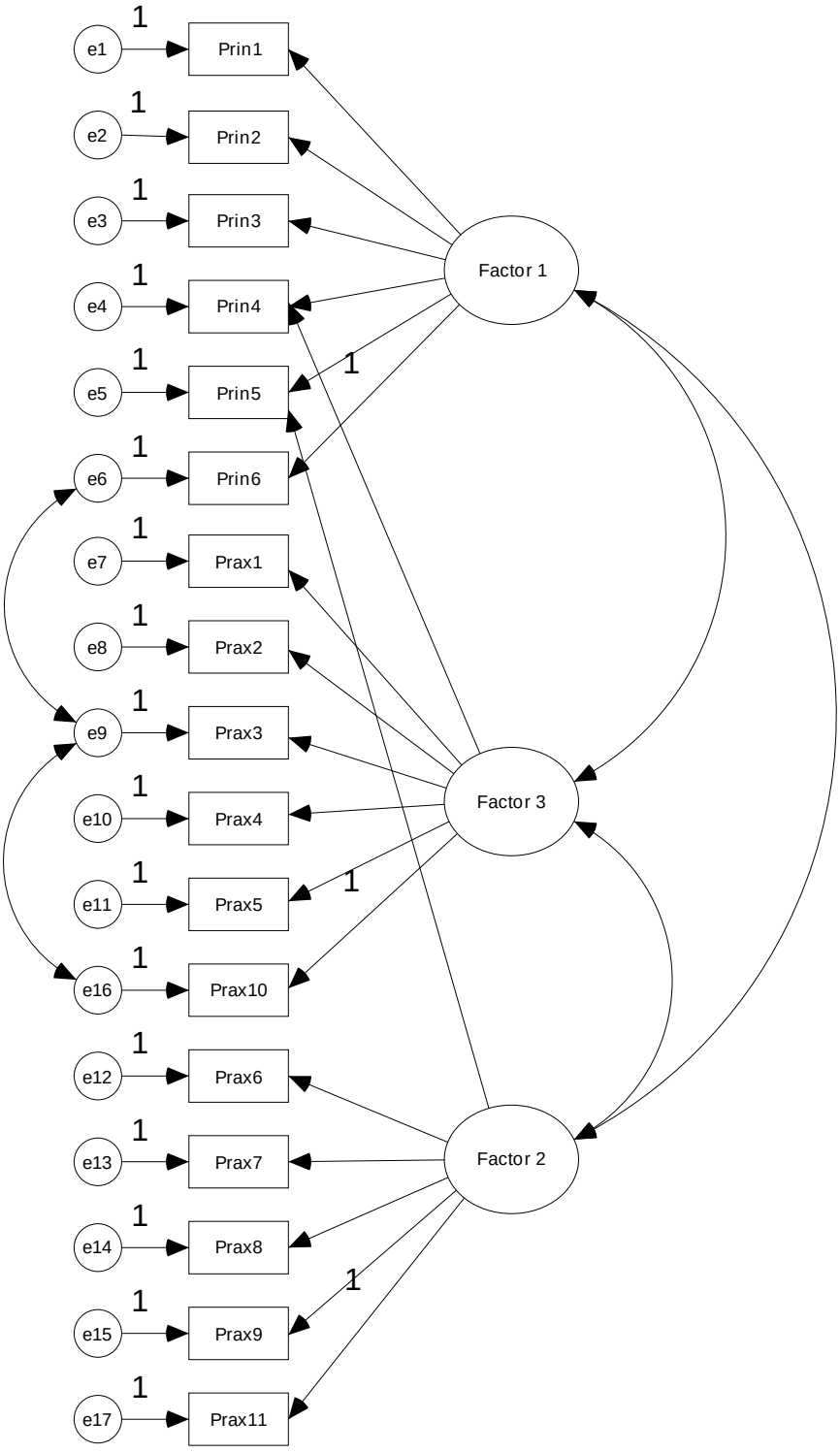
Table B-1

Descriptive Statistics on Item and Average Scores for the SpeciaLink Inclusion Principles Scale for Classrooms in Inclusive Centres and in Centres without Children with Identified Special Needs

	Classrooms in Inclusive Centres			Classrooms in Centres that do not Include Any Children with Special Needs		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Principle 1 Zero Reject	4.77	5.00	1.398	3.47	3.00	1.096
Principle 2 Natural Proportions	4.14	4.00	1.222	2.68	3.00	0.825
Principle 3 Same Hours	4.66	5.00	1.464	3.87	4.00	1.399
Principle 4 Full Participation	4.43	4.00	1.433	3.10	3.00	1.081
Principle 5 Maximum Parent Participation	4.40	4.00	1.483	3.30	3.00	1.102
Principle 6 Leadership, Proactive Strategies	3.78	4.00	1.590	1.71	1.00	1.052
Average Inclusion Principles Score	4.36	4.50	1.194	3.02	3.00	0.803

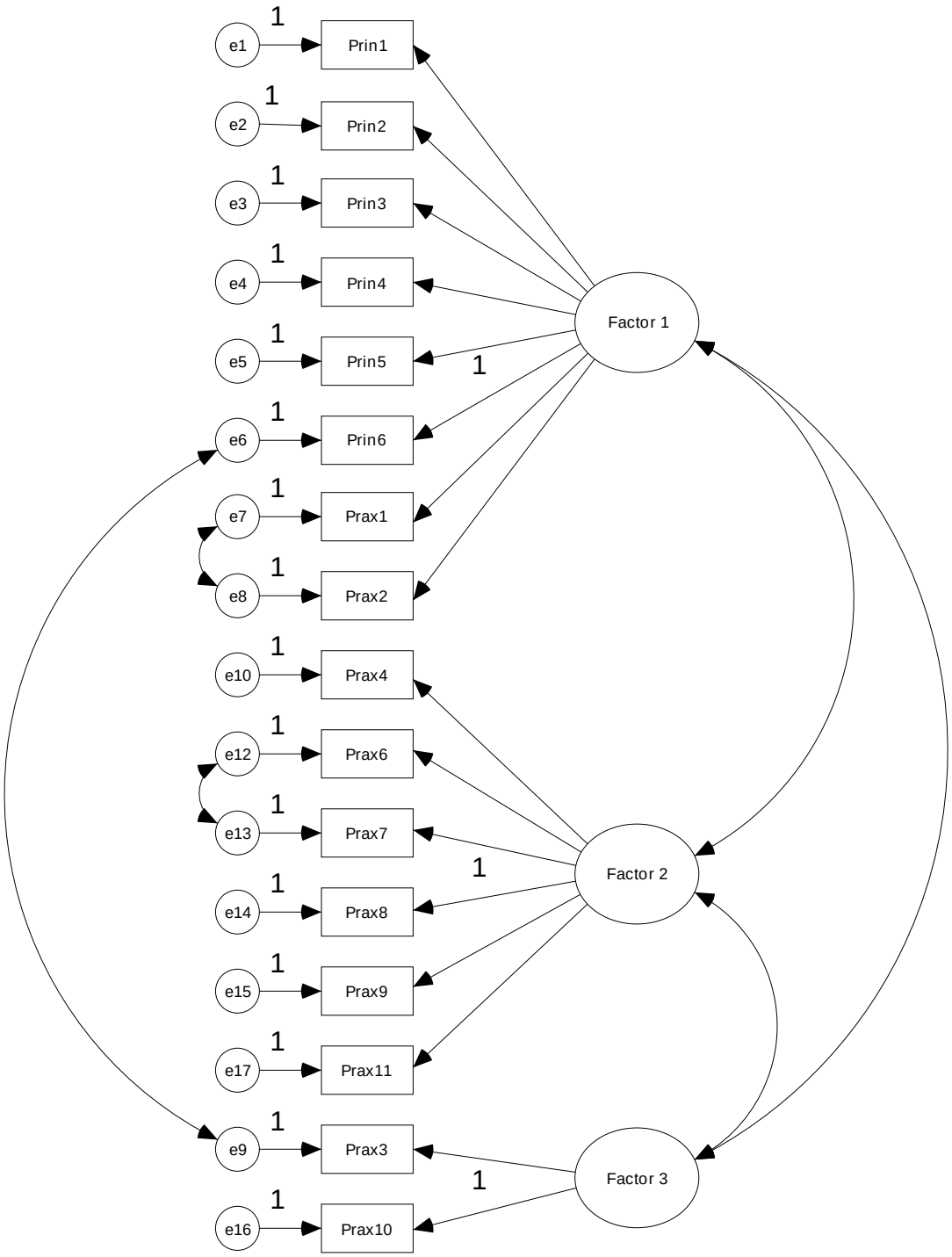
N = 421 classrooms in inclusive centres,
N = 79 classrooms in centres with no children with special needs.
All item scores ranged from 1 to 7

Appendix C – Confirmatory Factor Analysis
Final Full Sample Model



Based on scores obtained from all classrooms

Appendix D -- Confirmatory Factor Analysis
Final Inclusion Model



Based on scores obtained from inclusive classrooms