

12-20-2019

Exploring the Impact of Quality Early Child Education on Special Education: Can We Prevent Placement in Special Education?

Gabrielle D. Young
Memorial University of Newfoundland, gabrielle.young@mun.ca

David Philpott
Memorial University of Newfoundland, philpott@mun.ca

Emily Butler
Memorial University of Newfoundland, u23esh@mun.ca

Kimberly Maich
Memorial University of Newfoundland, kmaich@mun.ca

Sharon C. Penney
Memorial University of Newfoundland, scpenney@mun.ca

Abstract

This article examines the research literature to determine whether the provision of quality early childhood education (ECE) lowers the risk of a child developing special education needs (SEN) and mediates the intensity of support for children with an identified exceptionality. Schools play a crucial role in reducing developmental gaps assessed at school entry, but their success comes with great expense in special education and related costs. Research indicates that ECE could narrow these gaps and better prepare children for success in school, and this realization is slowly being reflected in public policy. Based on our literature review, we describe the benefits of quality ECE in lowering special education expenses. Specific play-based learning pedagogical strategies support all children in optimizing academic progress, language development, social skills, and emotional-behavioural regulation. Professional learning for early childhood educators can build capacity to embed effective pedagogy into daily practice. The provision of quality ECE that makes a difference depends on the knowledge and skills of this workforce.

ISSN 1918-5227

Pages 6- 21

This research was supported by a grant from the Margaret & Wallace McCain Family Foundation INC.

Follow this and additional works at: <https://ir.lib.uwo.ca/eei>

Recommended Citation

Young, G. D., Philpott, D., Butler, E., Maich, K., & Penney, S. C. (2019) Exploring the Impact of Quality Early Child Education on Special Education: Can We Prevent Placement in Special Education?. *Exceptionality Education International*, 29, 6-21. Retrieved from <https://ir.lib.uwo.ca/eei/vol29/iss3/2>

This Article - Open Access after 1 year is brought to you by Scholarship@Western. It has been accepted for inclusion in Exceptionality Education International by an authorized administrator of Scholarship@Western. For more information, please contact jspecht@uwo.ca.

Exploring the Impact of Quality Early Child Education on Special Education: Can We Prevent Placement in Special Education?

Cover Page Footnote

This research was supported by a grant from the Margaret & Wallace McCain Family Foundation INC.

Exploring the Impact of Quality Early Childhood Education on Special Education: Can We Prevent Placement in Special Education?

**Gabrielle D. Young, David Philpott, Emily Butler,
Kimberly Maich, and Sharon C. Penney**
Memorial University of Newfoundland

Abstract

This article examines the research literature to determine whether the provision of quality early childhood education (ECE) lowers the risk of a child developing special education needs (SEN) and mediates the intensity of support for children with an identified exceptionality. Schools play a crucial role in reducing developmental gaps assessed at school entry, but their success comes with great expense in special education and related costs. Research indicates that ECE could narrow these gaps and better prepare children for success in school, and this realization is slowly being reflected in public policy. Based on our literature review, we describe the benefits of quality ECE in lowering special education expenses. Specific play-based learning pedagogical strategies support all children in optimizing academic progress, language development, social skills, and emotional-behavioural regulation. Professional learning for early childhood educators can build capacity to embed effective pedagogy into daily practice. The provision of quality ECE that makes a difference depends on the knowledge and skills of this workforce.

International researchers consistently reach consensus that participation in quality ECE with intentional play-based pedagogy improves human development, especially for children from disadvantaged backgrounds (McCain, Mustard, & McCuaig, 2011; Melhuish, 2016; Melhuish et al., 2013; Pascal, 2009; Pelletier & Corter, 2018). Equal consensus exists that investing in the early years has lasting societal and economic impact

for families, communities, and economies (Alexander & Ignjatovic, 2012; Aos, Lieb, Mayfield, Miller, & Pennucci, 2004).

Most provinces and territories are aligning responsibility for ECE within ministries of education to integrate policy and planning (Atkinson Centre, 2017). The education of children in Canada is slowly morphing toward one continuum of planning and development, from the early years through high school graduation. However, there is a need for research on the ways that integrated early learning programs attempt to meet the needs of children with disabilities (Inclusive Early Childhood Service System, 2014). An opportunity is arising for earlier identification and intervention, as well as opportunities to strengthen family engagement and transition planning prior to primary school start. For example, children identified early with exceptionalities such as autism spectrum disorder (ASD) can begin receiving intervention services planned and delivered by ministries of education, which then continue throughout school. Given the growth in the rate of ASD (Ofner et al., 2018), the K–12 system would benefit immensely if these services were to be optimized before the child reaches first grade. Earlier intervention is underscored by the growing recognition of the uneven nature of child development. The preschool years hold vast differences in opportunities for young children, based on factors such as socio-economic status (SES) of the family, access to nutrition and health care, and participation in ECE (which varies greatly in both quality and access). A recent report by UNICEF (2018) outlined that 60% of Canadian families paid as much as a third of their income for access to ECE. Furthermore, 44% of Canadian children lived in areas where there is insufficient access to quality ECE. The UNICEF report concluded that while children enter school with diverse skills, Canadian schools were doing a relatively decent job of equalizing child development, except for marginalized children such as those with low SES and SEN. Exploring this latter cohort of students is, then, particularly important.

Challenges of Such a Line of Inquiry

Education in Canada, while influenced by federal and municipal policies, remains a provincial and territorial jurisdiction. As a result, there is wide variance in terminology, curriculum, pedagogy, policies, practices, and outcomes—in both the K–12 and ECE sectors (Akbari, Boivin, & Jenkins, 2015; Richardson & Langford, 2018). As a result, commenting on special education as a whole in Canada is a challenge, especially when comparing practices and outcomes. Differing models of support services, evolving diagnostic criteria, and changing concepts of disability all serve to limit comparisons between jurisdictions and over time. Similar challenges exist within the ECE sector, with great variation in tracking attendance, instability of ECE placements, poor record-keeping policies, and an absence of policy to identify or categorize individual needs. The provinces and three territories simply do not collect the same data at the same time or in the same way, if they collect data at all. In addition, children with disabilities are often under-represented or excluded in mainstream studies about child development (Feldman, Battin, Shaw, & Luckasson, 2012). Nonetheless, data amassed by this research team for a representative number of provinces afforded insight into trends and patterns in both special education and ECE, allowing us to explore Canadian trends.

We undertook an extensive review of the established national and international literature, with particular attention to longitudinal studies. A focus was placed on longitudinal studies, allowing us to examine the long-term benefits of investing in children's lives at a young age, and to display the social, emotional, academic, and economic benefits that ECE has for the general population. Given the time span of longitudinal studies, some of which began in the 1960s and tracked children through early adulthood, much of this data can seem old though foundational to the field. Subsequently, our review paid particular attention to more recent data as presented by Alexander, Beckman, Macdonald, Renner, & Stewart (2017); Pelletier & Corter (2018); and Taggart, Sylva, Melhuish, Sammons, & Siraj (2015). Dominant themes that emerged across all of these studies were of particular interest to us.

Keywords and phrases such as *longitudinal studies*, *early childhood education*, *benefits of early childhood education*, *special education enrolment*, *inclusive education*, *special education enrolment trends*, and *inclusive ECE* were used in literature searches to ensure a comprehensive overview of relevant knowledge. Additionally, public data from a representative number of Canadian provinces was requested from ministries of education and examined to help illuminate the nature of both participation in special education programs and inclusion in ECE programs. We reached out to provincial representatives for special education and early childhood education in almost all provinces via e-mail, phone calls, or in-person meetings. While the literature was rich on the pre-emptive nature of ECE, provincial and territorial data on inclusion during the early years was scant. Poor and inconsistent data collection processes and an absence of policy to mandate it, sabotage the sector and lead to uninformed public policy. Therefore, special education and ECE statistics presented below either came directly from individual provinces, or the provincial representatives directed us to reports or Internet sites where the information could be found.

It should be noted that quality ECE was defined as regulated early learning for children aged 0–6, delivered by qualified early childhood educators with an explicit curriculum framework. While parents have the option to arrange for a diverse network of care for their children during the early years, this study chose literature and data that examined the impact of regulated learning environments. Additionally, early programs for Indigenous families were not explored, given the diversity of such programs and the complexity of educational outcomes for such marginalized populations. Nonetheless, we were cognizant that ECE programs reflect the cultural and linguistic diversity of Canadian communities.

Special Education Enrolment

The World Health Organization (WHO, 2018) estimates that 15% of the global population lives with disabilities. Within the school population this equates to approximately 13% of students who require special education, 60% of whom manifest delays in highly preventive areas such as speech and language, emotional-behavioural regulation, or academic achievement (National Center for Education Statistics, 2018). Research is also definitive in stating that children with low SES are at a significantly higher risk of having SEN (New Jersey Council on Developmental Disabilities, 2016).

The Early Development Instrument (EDI), used worldwide to assess young children's readiness for school, provides an additional indication of the developmental needs of young children (Offord Centre for Child Studies, 2018b). It monitors early childhood development by allowing kindergarten educators to complete checklists on students' performances in five areas: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge. In 2014, a 10-year comparison of EDI data in Ontario showed that 14.4% of children were vulnerable in two or more domains (Offord Centre for Child Studies, 2018a). Of the 11.7% who were considered on the EDI as children with "special needs" in Ontario, more than 90% struggled with speech impairments, emotional-behavioural problems or a learning disability (Levenson, 2012; McCoy et al., 2017).

Research Examining the Intersection of ECE and SEN

The growth in scholarship of ECE, including a series of longitudinal studies, affords more than 50 years of data on the benefits of ECE, which serves as the intersection of the disciplines of ECE and special education. Table 1 profiles a series of these studies and their findings. What emerges is unanimity on the long-term impact on children's development in the very areas where children develop SEN, especially for those with low SES. It is also important to note that the nature of special education enrolment has shifted dramatically during the years of many of these studies, away from high incidence of intellectual, physical, and genetic disorders that were less malleable by a quality ECE experience. Today the population in special education is much more impacted by quality early experiences. Nonetheless, while each of these studies commented, to various degrees, on the ability for ECE to lower SEN, the true impact emerges when they are examined collectively. Such collective examinations were recently conducted by Canadian and American research teams.

In Canada, *Ready for Life* examined these studies for the economic impact of ECE, reporting that quality ECE positively affects economies and families (Alexander et al., 2017). It also reported that ECE advantages individual children by enhancing educational outcomes, high school completion, postsecondary education, and the socio-economic status of individual students. This is a significant conclusion for the population of children with SEN. The Canadian study builds on earlier research conclusions that children who did not attend ECE programs required costly supports later in school and that investment in the early years more than pays for itself in reduced social programs and loss of earning potential (Barnett, Jung, Youn, & Frede, 2013; Mahnken, 2017; Reynolds, Temple, White, Ou, & Robertson, 2011; Taggart et al., 2015). In the Canadian context, Quebec researchers concluded that increased participation in ECE boosted maternal labour market participation and their gross domestic product with an estimated \$5.1 billion increase (Fortin, Godbout, & St-Cerny, 2012). Economists have concluded that one of the best ways a country can boost prosperity, promote inclusive economic growth, expand equitable opportunity, and end extreme poverty is by investing in ECE (OECD, 2013).

Table 1
Longitudinal Studies on the Benefits of ECE

Longitudinal study	Enhanced literacy/ numeracy	Enhanced language skills	Enhanced social/ emotional skills	Greatest gains for low SES children	Reduction in special education	Control group used	Cost benefits
Abbott ¹	Yes	Yes		Yes	Yes	Yes	Yes
BBBF Project ²	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chicago Study ³	Yes	Yes		Yes	Yes	Yes	Yes
High/Scope ⁴	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EPPE Project ⁵	Yes	Yes	Yes	Yes	Yes	Yes	
EPPSE 3-16+ ⁶	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EYTSEN ⁷	Yes	Yes	Yes	Yes	Yes	Yes	
Abecedarian ⁸	Yes	Yes	Yes	Yes	Yes	Yes	Yes

In the United States, a research team also examined the longitudinal studies, in that case with a specific look at the impact on SEN, grade retention, and high school graduation (McCoy et al., 2017). A meta-analysis of 22 longitudinal ECE programs from the 1960s to 2016 concluded that enrolment in quality ECE reduced participation in special education programs by more than 8%, decreased grade retention by 8.29%, and increased high school graduation by more than 11%. These outcomes stem from the finding that the skills typically targeted by ECE programming (including cognitive skills in language, literacy, and mathematics, and socio-emotional capacities in self-regulation, motivation, engagement, and persistence) are likely precursors of children's ability to maintain a positive academic trajectory (Heckman, Pinto, & Savelyev, 2013). As a result, educational outcomes are theoretically relevant as more distal targets of ECE programming (McCoy et al., 2017).

The prevalence and cost of special education, grade retention, and high school dropout is significant (Levin, Belfield, Muennig, & Rouse, 2007). Understanding the possible benefits of ECE for mitigating negative educational outcomes is of particular importance to educational policymaking. Rich and diverse data confirms the utility of quality ECE in reducing education related expenditures and promoting child well-being.

¹ Barnett et al., 2013

² Peters, Bradshaw, et al., 2010; Peters, De, et al., 2010

³ Reynolds, Temple, Robertson, & Mann, 2001; Reynolds et al., 2011

⁴ Schweinhart & Weikart, 1997; Belfield, Nores, Barnett, & Schweinhart, 2006

⁵ Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2004; Sylva, Melhuish, Sammons, Siraj-Blatchford, Taggart, & Elliot, 2004; Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2009

⁶ Taggart et al., 2015

⁷ Sammons et al., 2003

⁸ Campbell & Ramey, 1995; Campbell et al., 2002.

Research continues to indicate that the years before kindergarten hold the key to improving academic and developmental trajectories, especially for at-risk children (Von Hippel, Workman, & Downey, 2018).

Quality ECE: The Key to a Lasting Impact

While quantity of ECE has a significant impact, research is beginning to identify the importance of quality of the ECE experience as being the true key to optimizing child development. In Denmark, a research team explored the importance of quality ECE on children's school performance by measuring student exam performance in 2008 for those who had attended ECE programs in 1998 (Bauchmüller, Gørtz, & Rasmussen, 2014). The intention was to examine not just the lasting impacts on the children's performance, but also the impact of high quality ECE. They considered factors such as staff-child ratio, number of male staff, qualifications of educators, and stability (or turnover of staff). Conclusions were that the higher the quality of ECE, the more significant the gains in children's test results. Boys benefitted more from the higher quality ECE program, and ethnic minority children benefitted from higher staff stability.

The Danish study builds on earlier work in the United Kingdom. *The Effective Provision of Pre-School Education (EPPE) Project* in the United Kingdom tracked more than 3,000 children beginning in 1997 and leading to a series of studies and investigations of the children's development in relation to a comparison group (Sammons et al., 2003; Sylva et al., 2004; Taggart et al., 2015). Collectively, these studies created a significant database that stretched across 18 years to 2015. The EPPE studies confirmed the lasting benefits of ECE on child development, particularly in academics, language, and social-emotional development. Again, children with low SES showed the biggest gains, and there was a significant reduction in SEN (Sammons et al., 2003).

The EPPE database remains operational, and we revisited it in 2018 with the intention of tracking SEN across the children's full school experience. Details of this study and its significant findings are presented in Melhuish et al., 2019, who argue that risk for SEN based on cognitive development and social-behavioural needs can be dramatically reduced by enrolment in ECE, and much more so by high quality ECE.

The impact of high quality ECE, in addition to quantity, is currently being explored in the Canadian context by a team of researchers tracking the phase-in of a two-year play-based kindergarten, delivered by a collaborative teaching team of an early childhood educator and a kindergarten teacher (Pelletier, 2012; Pelletier, & Corter, 2018; Pelletier, & Fesseha, 2019). Findings are consistent with earlier longitudinal studies, again dramatically more so for those considered at high risk. Collectively, these studies have confirmed that the key to improving educational outcomes is to invest in the early years, especially for vulnerable children.

Inclusive ECE Programs for All Children

Despite the wide recognition of the benefits of quality ECE, the sector remains inaccessible to many children, especially those most in need. Article 23 of the *United Nations Convention on the Rights of the Child* (United Nations Office of the High

Commissioner for Human Rights, 1990) specifically addresses the rights of children with disabilities to be active participants within their communities. In order to realize this right, governments must effortfully ensure that individuals with disabilities can access inclusive, quality educational programs on an equal basis with others in the communities in which they live. Research identifies a scarcity of training and skills specific to inclusion among ECE professionals (Bauchmüller et al., 2014; Doherty, Lero, Goelman, LaGrange, & Tougas et al., 2000; Killoran, Tymon, & Frempong, 2007). Inclusive early childhood education (IECE) for children aged 0–6 requires small groups, high staff-to-child ratios, adherence to health and safety policies, highly trained staff, fair salaries, explicit curriculum frameworks, and well-planned physical environments.

Concern for the absence of quality IECE is increasingly recognized by various international organizations including the European Union (Stahmer, Akshoomoff, & Cunningham, 2011). IECE is particularly crucial for children at risk of SEN whose individual learning or developmental needs are often first identified during the early years. One European Union benchmark in the strategic framework for European co-operation in education and training is that at least 95% of children between the age of four and six should participate in IECE (Stahmer et al., 2011). However, the Organisation for Economic Co-operation and Development (OECD, 2004) has reported that only one quarter of children with SEN are included in mainstream ECE programs.

Examining the Canadian Context

Neither Canada as a whole, nor individual provinces and territories, offer entitlement to service or inclusion for children with SEN in regulated IECE programs. Since the 1980s, community-based IECE programs have voluntarily expanded their mandates, often with the support of provincial or territorial funding, to include more children with SEN. While early childhood advocates, researchers, service providers and policy-makers, have identified IECE as “best practice,” in Canada it is not the reality for many families (Halfon, & Friendly, 2013). The *Early Childhood Education Report*, which monitors public policy on the early years, has indicated that the benchmark “funding conditional on including children with special needs in licensed child care” was only met by Manitoba and Ontario, and partially by Saskatchewan, Alberta, and Prince Edward Island (Atkinson Centre, 2017). That benchmark has hardly improved in the seven years since monitoring of ECE was launched in 2010 (McCain, Mustard, & McCuaig, 2011). While education is an entitlement for all children of legislated age in Canada, schools are increasingly suggesting that children with SEN attend part time. A 2014 survey of school principals in Ontario reported that 50% of elementary principals had at some point recommended students with special needs not attend school for the full day (Gallagher-MacKay & Kidder, 2014). A 2018 follow-up study identified that the trend had grown to 58% (People for Education, 2018, p. 14). Without precise age data, they are unclear how many of the children turned away fall into the early years age group.

In 2017, the Canadian federal government reached bilateral agreements with the provinces and territories to help support ECE, with a goal of promoting increased access to developmentally appropriate programs and greater inclusion of diverse children (Government of Canada, 2017). However, the agreements preclude funding to track for

quality assurance. Outcomes are measured by expanded access only. Improving access without addressing quality is not sufficient to secure positive individual and social outcomes.

Benefits of IECE

The early identification of young children's learning needs as well as the development of specific strategies to support them are increasingly recognized as crucial to facilitating good adjustment to school and to ensuring that such children are helped to reach their full potential (Anders et al., 2011). In Canadian schools, the majority of students are educated in their neighbourhood schools where the classroom teacher takes responsibility for the learning of all students. Inclusion is the recommended teaching practice in Canada and is mandated by every provincial and territorial government across the country.

Research has long identified that young children who participate in inclusive learning programs have stronger understandings of disabilities, are more tolerant of diversity, have greater empathy, and have more positive attitudes toward children who have SEN (Diamond, & Huang, 2005; Odom, Buysse, & Soukakou, 2011). IECE promotes the development of positive attitudes and pro-social behaviours while promoting friendships and acceptance of diversity in young children (Odom, Zercher, Li, Marquart, & Sandall, 2006; Vignes et al., 2009). Educators also benefit by acquiring inclusive pedagogies, collaborating more effectively with educational support staff, and becoming better at directing play among diverse learners, with less peer conflict and with children forming stronger relationships (Kwon, Hong, & Jeon, 2017).

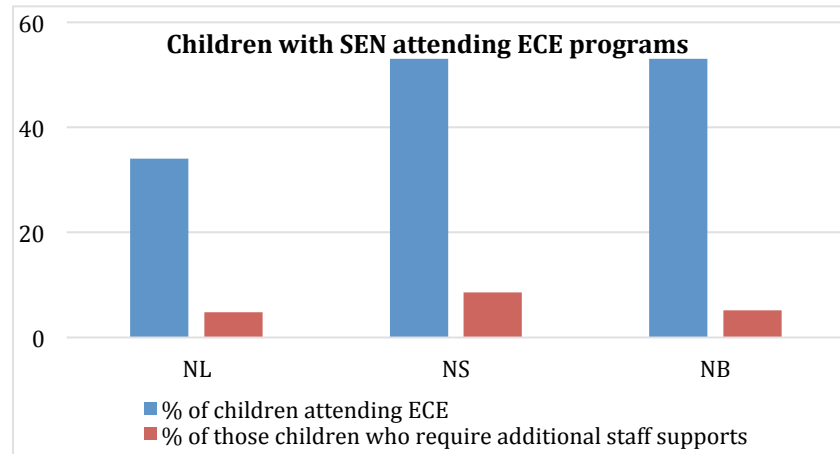
Families also benefit from IECE. It allows parents to continue to work, which can be crucial to meeting SEN-related expenses and to the family's economic and psychological well-being, both in the short and long term (Halfon & Friendly, 2013; Mayer, 2009). Women continue to be overwhelmingly responsible for the care of young children and are more likely than fathers to stay home or work part-time to care for children despite the financial burden on the family (Halfon & Friendly, 2013; Roeher Institute, 2000a). Mothers' employment situations are affected approximately 90% of the time in families with a child with SEN (Human Resources and Skills Development Canada, 2011). Mothers of children with SEN spend significant time caring for their child(ren), on average 50–60 hours per week (Roeher Institute, 2000a). This affects the health and well-being of mothers and the entire family unit. Studies have pointed to the necessity of affordable ECE to enable parents to participate in the workplace (Roeher Institute, 2000b). Research has found that families who have children with SEN are at a significantly higher risk for poverty (Hanvey, 2002). A young child with SEN who does not have access to IECE results in an unemployed or underemployed parent and family who is struggling financially.

Access to IECE

While special education is robust in the K–12 system, a different picture emerges for the ECE sector. We contacted a representative sample of Canadian provinces for public data on students with SEN in ECE programs. All provinces reported having inclusive

policies, but few were able to quantify how many children were requiring supports, and none could identify the specific reasons for such support. Most provinces approve extra supports in ECE programs based on documentation that the child, for whatever reason, needs additional staff attention. There is a strong argument for this, as categorizing children during these early years can be complicated. Nonetheless, the resulting profile (see Figure 1) sheds light on IECE in three provinces.

Figure 1. Children with SEN Attending ECE Programs



Note: Data provided by Ministries of Education; Atkinson Centre, 2017

Such low access stems from multiple reasons: the high cost of IECE for families with low SES and challenges of identifying young children with a specific exceptionality. However, human resources, in the form of both sufficient training and appropriate child-staff ratios, is a dominant challenge. Enrolling a child with SEN in an ECE program often requires additional staff attention, which impacts budgets. Understanding the child's needs and knowing how to support them requires additional training, which is seldom available. The IECE sector is the final frontier in the quest toward inclusive education; and if the federal government intends to increase access to ECE for diverse children, human resource issues must be addressed, as extra needs require extra staffing and professional development.

Transition Planning

An additional benefit of IECE is the opportunity to facilitate early transition planning which is being increasingly recognized as crucial for children with SEN (Odom et al., 2011). Coordination among education, ECE, developmental services, and healthcare sectors is needed to support educational achievement for all students, especially those with SEN (Clark & Crandall, 2009; Janus, 2011; McIntyre, Blacher, & Baker, 2006). The transition from ECE to primary school can be complex for children with SEN, and it can be an upsetting and difficult process for families (Daley, Munk, & Carlson, 2011; Janus, Lefort, Cameron, & Kopechanski, 2007; Siddiqua, & Janus, 2016). Positive transitions are associated with “the consistent use of developmentally appropriate practices across

programs, especially for children with disabilities” (Rouse, Myers, & Stricklin, 2007, p. 15). Researchers have estimated that 48% of children experience moderate to serious problems with adjustment to school (Pianta & Cox, 1998). Establishing effective programs for these children during the early years will allow a redeployment of resources and an enhanced school experience for them and their families.

While the integration of ECE into ministries of education implies greater opportunity to ensure fluid transition planning, such is seldom the case. An OECD (2017) report on transition planning within integrated governance outlined that smooth transitions are not a guarantee. The OECD report recommended a continuity of curriculum frameworks, pedagogical practices, and professional development opportunities between the early years and primary school. Parental involvement during transition planning is also crucial with effective avenues of information sharing (Berlin, Dunning, & Dodge, 2011; Carlson et al., 2009; Schulting, Malone, & Dodge, 2005; Stoner, Angell, House, & Bock, 2007; Villeneuve et al., 2013). Readiness develops during the early years and is moulded by multiple factors such as qualifications of the staff, curriculum, pedagogical practices, and the social and emotional experiences of the child. Inclusive policies matched with pragmatic practices will not only ready children for school but also ready the school for children.

Summary

Established national and international research documents the benefits of quality ECE. While the perennial challenge of accessing consistent quality data about child well-being in Canada’s multi-jurisdictional federation persists, literature links access to quality ECE to child, family, and community outcomes. The majority of conditions for which children receive school-based supports (speech and language, behaviour, learning challenges) are most successfully addressed through interventions during the early years before difficulties become biologically embedded and secondary characteristics begin to manifest. Emergent studies such as the recent re-examination of the EPPE data and the ongoing study in Ontario reiterate this and are valuable contributions to the literature, not just because results confirm what has already been documented, but also because it tracks the impact of high quality with sufficient quantity of early intervention. It speaks to the impact of collaborative teaching in a play-based, language-rich environment for two years prior to the first grade. Coupled with integrated governance, this research informs public policy on the opportunity of using the neighbourhood school platform, beginning in the early years, to optimize development for all children, regardless of individual differences. If schools are indeed a great equalizer for child development, sufficient participation in high quality IECE maximizes this equalization for all children, especially those at risk. Quality IECE, with trained educators and strong curriculum frameworks delivered through play-based pedagogy, inoculates children against developing SEN and optimizes child development for all. The key to identifying how much of an impact it has on SEN rests with the quality of the ECE experience. Research is conclusive in identifying a causal link between raising the quality of ECE and raising its impact on SEN (Barnett et al., 2013; Peters, Bradshaw, et al., 2010; Reynolds et al., 2011; Schweinhart & Weikart, 1997; Sylva et al., 2004; Taggart et al., 2015; Sammons et al., 2003; Campbell et al., 2012). The sectors of early learning and special education have much to collaborate on. More importantly the secondary education system has much to

gain from promoting universal access to ECE. There will always be a need for special education programs, but earlier intervention can significantly lessen the supports children require later in school and assure their graduation rates. The discussed literature can support policy-makers who grapple with the rising costs of special education and educators and administrators who deal with increased demand in an environment of shrinking resources. Educators and policy-makers need to consider the impact of prioritizing quality ECE in redirecting the trajectory of young children's lives.

References

- Akbari, E., Boivin, M., & Jenkins, J. (2015). Empowering the future: Best evidence for investing in early childhood education in Canada [Web page]. Retrieved from http://www.oise.utoronto.ca/atkinson/About_Us/What_We_Do/Empowering_The_Future.html
- Alexander, C., & Ignjatovic, D. (2012, Nov. 27). *Early childhood education has widespread and long-lasting benefits* (TD Economics special report). Retrieved from https://www.td.com/document/PDF/economics/special/di1112_EarlyChildhoodEducation.pdf
- Alexander, C., Beckman, K., Macdonald, A., Renner, C., & Stewart, M. (2017). *Ready for life: A socio-economic analysis of early childhood education and care*. Ottawa, ON: The Conference Board of Canada.
- Anders, Y., Sammons, P., Taggart, B., Sylva, K., Melhuish, E., & Siraj-Blatchford, I. (2011). The influence of child, family, home factors and pre-school education on the identification of special educational needs at age 10. *British Educational Research Journal*, 37(3), 421–441. doi:10.1080/01411921003725338
- Aos, S., Lieb, R., Mayfield, J., Miller, M., & Penucci, A. (2004). *Benefits and costs of prevention and early intervention programs for youth*. Olympia, WA: Washington State Institute for Public Policy. Retrieved from <http://www.wsipp.wa.gov/>
- Atkinson Centre for Society and Child Development. (2017). *Early childhood education report*. Retrieved from <http://ecereport.ca/media/uploads/2017-report-pdfs/ece-report2017-en-feb6.pdf>
- Barnett, W. S., Jung, K., Youn, M. J., & Frede, E. C. (2013). *Abbott Preschool Program Longitudinal Effects study: Fifth grade follow-up*. Retrieved from <http://nieer.org/wp-content/uploads/2013/11/APPLES205th20Grade.pdf>
- Bauchmüller, R., Gørtz, M., & Rasmussen, A. W. (2014). Long-run benefits from universal high-quality preschooling. *Early Childhood Research Quarterly*, 29(4), 457–470.
- Belfield, C., Nores, M., Barnett, S., & Schweinhart, L. (2006). The High/Scope Perry Preschool Program: Cost-benefit analysis using data from the age-40 followup. *The Journal of Human Resources*, 41(1), 162–190. Retrieved from <http://www.jstor.org/stable/40057261>
- Berlin, L. J., Dunning, R. D., & Dodge, K. A. (2011). Enhancing the transition to kindergarten: A randomized trial to test the efficacy of the “Stars” summer kindergarten orientation program. *Early Childhood Research Quarterly*, 26, 247–254.
- Campbell, F. A., Pungello, E. P., Burchinal, M., Kainz, K., Pan, Y., Wasik, B. H., ... Craig, T. (2012). Adult outcomes as a function of an early childhood educational program: An Abecedarian project follow-up. *Developmental Psychology*, 48(4), 1033–1043. doi:10.1037/a0026644
- Campbell, F., & Ramey, C. (1995). Cognitive and school outcomes for high-risk African-American students at middle adolescence: Positive effects of early intervention. *American Educational Research Journal*, 32(4), 743–772. doi:10.3102/00028312032004743

- Campbell, F., Ramey, C., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian project. *Applied Developmental Science, 6*(1), 42–57. doi:10.1207/S1532480XADS0601_05
- Carlson, D. T., Bitterman, A., Heinzen, H., Keller, B., Markowitz, J., & Riley, J. (2009). *Early school transitions and the social behavior of children with disabilities: Selected findings from the PreElementary Education Longitudinal Study*. Rockville, MD: Westat. Retrieved from <https://ies.ed.gov/ncser/pdf/20093016.pdf>
- Clark, M. A., & Crandall, B. (2009). School counsellor inclusion: A collaborative model to provide academic and social-emotional support in the classroom setting. *Journal of Counselling and Development, 87*, 6–11. doi:10.1002/j.1556-6678.2009.tb00543.x
- Daley, T. C., Munk, T., & Carlson, E. (2011) A national study of kindergarten transition practices for children with disabilities. *Early Childhood Research Quarterly, 26*, 409–419.
- Diamond, K. E., & Huang, H. (2005). Preschoolers' ideas about disabilities. *Infants & Young Children, 18*(1), 37–46.
- 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, University of Guelph.
- Feldman, M. A., Battin S. M., Shaw, O. A., & Luckasson, R. (2013). Inclusion of children with disabilities in mainstream child development research. *Disability & Society, 28*(7), 997–1011.
- Fortin, P., Godbout, L., & St-Cerny, S. (2012). *Impact of Quebec's universal low fee childcare program on female labour force participation, domestic income, and government budgets* (Working paper 2012/02). Sherbrooke, QC: Research Chair in Taxation and Public Finance, Université de Sherbrooke. Retrieved from https://media.winnipegfreepress.com/documents/Etude_femmes_ANGLAIS.pdf
- Gallagher-MacKay, K. & Kidder, A. (2014). *Special education: A People for Education report*. Toronto, ON: People for Education. doi:10.13140/RG.2.2.31439.69281
- Government of Canada. (2017). *Multilateral early learning and child care framework*. Retrieved from <https://www.canada.ca/en/employment-social-development/programs/early-learning-child-care/reports/2017-multilateral-framework.html>
- Halfon, S., & Friendly, M. (2013). *Inclusion of young children with disabilities in regulated child care in Canada. A snapshot: Research, policy and practice* (Occasional Paper No. 27). Toronto, ON: Childcare Resource and Research Unit. Retrieved from <http://www.childcarecanada.org/sites/default/files/Occasional%20paper%2027%20FINAL.pdf>
- Hanvey, L. (2002). *Children with disabilities in Canada: A discussion paper commissioned by the National Children's Alliance for the First National Roundtable on Children with Disabilities*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.3999&rep=rep1&type=pdf>
- Heckman, J., Pinto, R., & Savelyev, P. (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *American Economic Review, 103*(6), 2052–208. doi:10.1257/aer.103.6.2052
- Human Resources and Skills Development Canada. (2011). *Disability in Canada: A 2006 profile*. Retrieved from http://publications.gc.ca/collections/collection_2011/rhdcc-hrsdc/HS64-11-2010-eng.pdf
- Inclusive Early Childhood Service System. (2014). *Inclusive Early Childhood Service System (IECSS) project policy brief no. 1*. doi:10.13140/RG.2.1.1463.2083

- Janus, M. (2011). Impact of impairment on children with special needs at school entry: Comparison of school readiness outcomes in Canada, Australia, and Mexico. *Exceptionality Education International*, 21(2), 29–44. Retrieved from: <https://ir.lib.uwo.ca/eei/vol21/iss2/5>
- Janus, M., Lefort, J., Cameron, R., & Kopechanski, L. (2007). Starting kindergarten: Transition issues for children with special needs. *Canadian Journal of Education*, 30(3), 628–648. doi: 10.2307/20466656
- Killoran, I., Tymon, D., & Frempong, G. (2007). Disabilities and inclusive practices within Toronto preschools. *International Journal of Inclusive Education*, 11(1), 81–95. doi:10.1080/13603110500375473
- Kwon, K. A., Hong, S. Y., & Jeon, H. J. (2017). Classroom readiness for successful inclusion: Teacher factors and preschool children's experience with and attitudes toward peers with disabilities. *Journal of Research in Childhood Education*, 31(3), 360–378. doi:10.1080/02568543.2017.1309480
- Levenson, N. (2012). *Boosting the quality and efficiency of special education*. Washington, DC: Thomas Fordham Institute. Retrieved from ERIC database (Doc. ED534985), www.eric.ed.gov
- Levin, H., Belfield, C., Muennig, P., & Rouse, C. (2007). *The costs and benefits of an excellent education for all of America's children* (Vol. 9). New York, NY: Teachers College, Columbia University
- Mahnken, K. (2017, July 4). Intensive preschool programs can yield massive returns, especially for boys, Nobel Laureate's study shows. *The 74*. Retrieved from <https://www.the74million.org/article/intensive-preschool-programs-can-yield-massive-returns-especially-for-boys-nobel-laureates-study-shows/>
- Mayer, D. (2009). Disability and inclusion: Changing attitudes—Changing policy. *Our Schools / Our Selves*, 18(3), 159–168.
- McCain, M. N., Mustard, J. F., & McCuaig, K. (2011). *Early Years Study 3: Making decisions, taking action*. Toronto, ON: Margaret & Wallace McCain Family Foundation.
- McCoy, D., Yoshikawa, H., Ziol-Guest, K., Duncan, G., Schindler, H., Magnuson, K., ... Shonkoff, J. (2017). Impacts of early childhood education on medium- and long-term educational outcomes. *Educational Researcher*, 46(8), 474–487. doi:10.3102/0013189X17737739
- McIntyre, L. L., Blacher, J., & Baker, B. L. (2006). The transition to school: Adaptation in young children with and without intellectual disability. *Journal of Intellectual Disability Research*, 50(5), 349–361. doi:10.1111/j.1365-2788.2006.00783.x
- Melhuish, E. (2016). Longitudinal research and early years policy development in the UK. *International Journal of Child Care and Education Policy*, 10(3). doi:10.1186/s40723-016-0019-1
- Melhuish, E., Barnes, J., Gardiner, J., Siraj, I., Sammons, P., Sylva, K., & Taggart, B. (2019). A study of the long-term influence of early childhood education and care (ECEC) on the risk for developing special educational needs (SEN). *Exceptionalities Education International*, 29(3), 22–41.
- Melhuish, E., Quinn E., Sylva, K., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2013). Preschool affects longer term literacy and numeracy: Results from a general population longitudinal study in Northern Ireland. *School Effectiveness and School Improvement*, 24(2), 234–250. doi:10.1080/09243453.2012.749796
- National Center for Education Statistics. (2018). Fast facts: Students with disabilities [Web page]. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=64>

- New Jersey Council on Developmental Disabilities. (2016). Homelessness, poverty, and special education [Web page]. Retrieved from <https://www.njcommonground.org/homelessness-poverty-and-special-education/>
- Odom, S. L., Zercher, C., Li, S., Marquart, J., & Sandall, S. (2006). Social acceptance and social rejection of young children with disabilities in inclusive classes. *Journal of Educational Psychology, 98*, 807–823.
- Odom, S. L., Buysse, V. A., & Soukakou, E. (2011). Inclusion for young children with disabilities: A quarter century of research perspectives. *Journal of Early Intervention, 33*(4), 344–356. <https://doi.org/10.1177/1053815111430094>
- Organisation for Economic Co-operation and Development (OECD). (2004). *Early childhood education and care policy: Canada: Country note*. Retrieved from <http://www.oecd.org/education/school/33850725.pdf>
- Organisation for Economic Co-operation and Development (OECD). (2013). *Educators indicators in focus*. Retrieved from <http://www.oecd.org/education/skills-beyond-school/EDIF11.pdf>
- Organisation for Economic Co-operation and Development (OECD). (2017). *Starting strong V: Transitions from early childhood education and care to primary education*. Paris, France: Author. doi:10.1787/9789264276253-en
- Offord Centre for Child Studies. (2018a). EDI in Ontario [Web page]. Retrieved from <https://edi.offordcentre.com/partners/canada/edi-in-ontario/#Vulnerability>
- Offord Centre for Child Studies. (2018b). What is the EDI? [Web page]. Retrieved from <https://edi.offordcentre.com/about/what-is-the-edi/>
- Ofner, M., Coles, A., Decou, M.L., Do, M. T., Bienek, A., Snider, J., & Ugnat, A.-M. (2018). *Autism spectrum disorder among children and youth in Canada 2018—A report of the National Autism Spectrum Disorder Surveillance System*. Ottawa, ON: Public Health Agency of Canada. Retrieved from <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/autism-spectrum-disorder-children-youth-canada-2018.html>
- Pascal, C. (2009). *With our best future in mind: Implementing early learning in Ontario*. Toronto, ON: Queen's Printer for Ontario.
- Pelletier, J. (2012). New directions in integrated early childhood services in school-as-hub models: Lessons from Toronto First Duty and Peel Best Start. In N. Howe & L. Prochner (Eds.), *New directions in early childhood care and education in Canada* (pp. 367–396). Toronto, ON: University of Toronto Press.
- Pelletier, J., & Corter, J. (2018). A longitudinal comparison of learning outcomes in full-day and half-day kindergarten. *The Journal of Educational Research, 112*(2), 192–210. doi:10.1080/00220671.2018.1486280
- Pelletier, J., & Fesseha, E. (2019). The impact of full-day kindergarten on learning outcomes and self-regulation among kindergarten children at risk for placement in special education. *Exceptionalities Education International, 29*(3), 42–56.
- People for Education. (2018). Special education. In *The new basics for public education: People for Education annual report on Ontario's publicly funded schools 2018* (pp. 14–19). Toronto, ON: Author. Retrieved from https://peopleforeducation.ca/wp-content/uploads/2018/06/AnnualReport18_Web.pdf
- Peters, R., Bradshaw, A., Petrunka, K., Nelson, G., Herry, Y., Craig, W., ... Collins, W. (2010). The Better Beginnings, Better Futures project: Findings from Grade 3 to Grade 9. *Monographs of the Society for Research in Child Development, 75*(3), 1–176. Retrieved from <http://www.jstor.org/stable/40984372>

- Peters, R., De, V., Nelson, G., Petrunka, K., Pancer, S.M., Loomis, C., ... Van Andel, A. (2010). *Highlights of Better Beginnings, Better Futures research findings at Grade 12*. Retrieved from <http://bbbf.ca/Portals/15/pdfs/Grade%2012%20report%20FINAL%20version.pdf>
- Pianta, R., & Cox, M. (1998, July). Teachers: 48% of children have transition problems. *NCEDL Spotlight No. 1: Kindergarten transitions*. Chapel Hill, NC: National Center for Early Development & Learning. Retrieved from <https://fpg.unc.edu/resources/ncedl-spotlights-1>
- Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *JAMA*, 285(18), 2339–2346. doi:10.1001/jama.285.18.2339
- Reynolds, A. J., Temple, J. A., White, B. A. B., Ou, S., & Robertson, D. L. (2011). Age 26 cost-benefit analysis of the Child-Parent Center early education program. *Child Development*, 82(1), 379–404. doi:10.1111/j.1467-8624.2010.01563.x
- Richardson, B., & Langford, R. (2018). Early childhood education and care in Canada: Consistently inconsistent childcare policy. In S. Garvis, S. Phillipson, & H. Harju-Luukkainen (Eds.), *Early Childhood Education in the 21st Century: Vol. 1. International perspectives on early childhood education and care* (pp. 38–51). London, UK: Routledge.
- Roeher Institute. (2000a). *Beyond the limits: Mothers caring for children with disabilities*. North York, ON: L’Institut Roeher Institute.
- Roeher Institute. (2000b). *Count us in: A demographic overview of childhood and disability in Canada*. North York, ON: L’Institut Roeher Institute.
- Rouse, B., Myers, C., & Stricklin, S. (2007). Strategies for supporting transitions of young children with special needs and their families. *Journal of Early Intervention*, 30(1), 1–18. doi:10.1177/105381510703000102
- Sammons, P., Taggart, B., Smees, R., Sylva, K., Melhuish, E., Siraj-Blatchford, I., & Elliot, K. (2003). *The Early Years Transitions & Special Educational Needs (EYTSSEN) project*. London, UK: Institute of Education, University of London. Retrieved from <http://dera.ioe.ac.uk/18204/1/RR431.pdf>
- Schulting, A., Malone, P., & Dodge, K. (2005). The effect of school-based kindergarten transition policies and practices on child academic outcomes. *Developmental Psychology*, 41(6), 860–871. doi:10.1037/0012-1649.41.6.860
- Schweinhart, L. J., & Weikart, D. P. (1997). The High/Scope Preschool Curriculum Comparison Study through age 23. *Early Childhood Research Quarterly*, 12(2), 117–143.
- Siddiqua, A., & Janus, M. (2016). Experiences of parents of children with special needs at school entry: A mixed method approach. *Child: Care, Health and Development*, 43(4), 566–576. doi:10.1111/cch.12443
- Stahmer, A., Akshoomoff, N., & Cunningham, A. B. J. (2011). Inclusion for toddlers with autism spectrum disorders: The first ten years of a community program. *Autism*, 15(5), 625–641. doi:10.1177/1362361310392253
- Stoner, J. B., Angell, M. E., House, J. J., & Bock, S. J. (2007). Transitions: Perspectives from parents of young children autism spectrum disorder (ASD). *Journal of Developmental and Physical Disabilities*, 19, 23–39.
- Sylva, K., Melhuish, E. C., Sammons, P., Siraj, I., & Taggart, B. with Smees, R., Toth, K., Welcomme W., & Hollingworth, K. (2014). *Effective Pre-school, Primary and Secondary Education 3–16 (EPPSE 3-16) project. Students’ educational and developmental outcomes at age 16* (Research report RR354). London, UK: Department for Education.

- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). *The Effective Provision of Pre-School Education (EPPE) project: The final report* (Technical paper 12). London, UK: Institute of Education, University of London.
- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2009). *Effective Pre-School and Primary Education 3–11 (EPPE 3–11) project. Final report from the primary phase: Pre-school, school, and family influences on children’s development during Key Stage 2 (age 7–11)*. London, UK: Institute of Education, University of London.
- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., Taggart, B., & Elliot, K. (2004). *The Effective Provision of Pre-school Education (EPPE) project: Findings from the pre-school period to end of Key Stage 1*. Retrieved from <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=3155&context=sspapers>
- Taggart, B., Sylva, K., Melhuish, E., Sammons, P., & Siraj, I. (2015). *Effective Pre-school, Primary and Secondary Education 3–16 (EPPSE 3-16+) project: How pre-school influences children and young people’s attainment and developmental outcomes over time*. Retrieved from http://dera.ioe.ac.uk/23344/1/RB455_Effective_preschool_primary_and_secondary_education_project.pdf
- UNICEF. (2018). *UNICEF report card 15 (Canadian companion): The equalizer: How education creates fairness for children in Canada*. Retrieved from <https://www.unicef.ca/en/unicef-report-card-15>
- United Nations Office of the High Commissioner for Human Rights. (1990). *Convention on the rights of the child*. Retrieved from <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>
- Vignes, C., Godeau, E., Sentenac, M., Coley, N., Navarro, F., Grandjean, H., & Arnaud, C. (2009). Determinants of students’ attitudes towards peers with disabilities. *Developmental Medicine & Child Neurology*, 51(6), 473–479. doi:10.1111/j.1469-8749.2009.03283.x
- Villeneuve, M., Chatenoud, C., Hutchinson, N. L., Minnes, P., Perry, A., Dionne, C., ... Weiss, J., (2013). Interprofessional research on the inclusion of young children with developmental disabilities as they transition from preschool to elementary school. *Canadian Journal of Education*, 36(1), 4–43.
- Von Hippel, P., Workman, J., & Downey, D. (2018). Inequality in reading and math skills forms mainly before kindergarten: A replication, and partial correction, of “Are Schools the Great Equalizer?” *Sociology of Education*, 91(4), 323–357.
- World Health Organization. (2018). Disability and health [Web page]. Retrieved from <http://www.who.int/en/news-room/fact-sheets/detail/disability-and-health>

Authors’ Note

Correspondence concerning this article should be addressed to: Gabrielle Young, G. A. Hickman Building, Box 125, Memorial University of Newfoundland, St. John’s, NL, A1C 3X8, Canada. Email: gabrielle.young@mun.ca