

Making it Logical: Implementation of Inclusive Education Using a Logic Model Framework

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Educational inclusion of children with special learning needs is a philosophy and movement with an international presence. Though Canada is a leader in educational inclusion, many would claim that our public educational systems have not yet fully realized the dream of inclusive education. As other countries have noted, making full-fledged changes in systems can be difficult without a strategic plan of action that clearly articulates the stages of implementation, and without an agreed upon framework for planning, putting into action, and measuring the success. In this paper, we introduce the logic model framework for describing the process of creating inclusive educational environments. Logic models focus on implementation of a program, from start to end, making explicit the key assumptions on which the process is based, and help to identify where implementation may be breaking down. We create a generic logic model for the implementation of inclusive education, based on the documents from two Canadian provinces.

Keywords: inclusion, logic model, special education

INTRODUCTION

Educational inclusion of children with special learning needs is an internationally recognized philosophy and movement. While Canada is a leader in educational inclusion, being the first country worldwide to ensure the rights of the disabled in 1982 with the Canadian Charter of Rights and Freedoms, implementation and practices are extremely varied (Blask, 2011; Inclusion International, 2009; Lyons, Thompson, & Timmons, 2016) and often slowly incorporated (Loreman, McGhie-Richmond, Barber, & Lupart, 2008). Like many jurisdictions world-wide, there may be various reasons why, even after many years of good intentions and policy documents, the vision of inclusive schools has not yet been fully actualized. In this paper we use a logic model framework to demonstrate how educational jurisdictions can either begin to implement inclusive practices, or identify where the process may be breaking down, in order to strategically refine the implementation process.

Logic models are normally used to map out program components and the processes that connect them. We use the structure of logic models to explicitly and systematically render the general goals of equitable and inclusive education. Specific aspects of logic models require stakeholders to identify the key components, assumptions, external (contextual) factors, inputs, output and outcomes, as a means to guide and evaluate implementation. Stakeholders must go beyond policy statements to clearly express the intended goals and impacts, and consider the mechanisms through

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which they may be achieved (Atler & Murty, 1997; Hernandez, 2000; McLaughlin & Jordan, 1999; Newton, Poon, Nunes, & Stone, 2013). In other words, by thinking about inclusive education as an approach to be systematically implemented within specific contexts, we are better able to pin down its key elements and their projected use, and consider ways to measure actual impacts.

We will begin our paper with a brief overview of the philosophy of educational inclusion for children with learning disabilities¹ and some of the challenges related to definitions, operationalization, and implementation. Following this, we outline the logic model framework, including the definition of key terms and processes (such as the effects of moderators and the mediation effects on student outcomes) (Baron & Kenny, 1986; Kraemer, Wilson, Fairburn, & Agras, 2002). Next, we outline what the “end view” might be for an educational jurisdiction which is moving toward the goal of inclusive educational service delivery. We then articulate a “program” of inclusion using the logic model framework, identifying assumptions, inputs, activities, and outcomes indicative of successful inclusive educational practices, as well as potential external factors that facilitate or impede the process.

EDUCATIONAL INCLUSION

History and Definition

Although there is no universal consensus on the definition of inclusive education, the philosophy is rooted in social justice for all marginalized learners (Waitoller & Artiles, 2013) so that each individual can reach his or her full potential. Two of the most significant international events which helped to solidify the philosophy and movement were the United Nations Year of the Disabled in 1981 and the UN Convention on the Rights of Persons with Disabilities which came into force in 2008, both of which were supported by powerful worldwide organizations such as UNESCO, UNICEF, OECD, and the World Bank. In 1994 there was a World Conference on Special Needs Education in Salamanca, Spain. This UNESCO sponsored event led to what is called the Salamanca Accord which is an agreement of intent signed by 92 governments worldwide. The countries which signed the accord, including Canada, agreed to work toward free and public education for ALL children within their respective countries, regardless of children’s gender, ethnicity, or dis/ability.

The Canadian Experience

Like many countries, each province and territory in Canada is in charge of its own educational system, creating even more diversity in definition and operationalization. For example, in the province of British Columbia “[i]nclusion describes the principle that all students are entitled to equitable access to learning, achievement and the pursuit of excellence in all aspects of their educational programs” (British Columbia Ministry of Education, 2011, p. 2). This same document notes, however, that inclusion is “not necessarily synonymous with full integration into regular classrooms” and that inclusion “does not preclude the use of resource rooms, self-contained classes....or other specialized settings” (British Columbia Ministry of Educa-

1 In this paper, we use the term “learning disabilities” consistent with the European definition of intellectual disability.

tion, 2011, p. 2). Ontario describes inclusive education as “[e]ducation that is based on the principles of acceptance and inclusion of all students. Students see themselves reflected in their curriculum, their physical surroundings, and the broader environment, in which diversity is honoured and all individuals are respected” (Ontario Ministry of Education, 2009, p. 6).

In addition to the differences in definition and operationalization of inclusive education, there is limited research on the implementation of inclusive education in a Canadian context. Despite the initiative being in existence for over 30 years, there is little empirical evidence which demonstrates the *changes* in attitudes, practices, and performance. Rather, research in inclusive education typically analyzes the current state of functioning such as the attitudes of teachers (De Boer, Pijl, & Minnaert, 2011; Ornelles, Cook, & Jenkins, 2007), students (Loreman et al., 2008), and parents (Duhaney & Salend, 2000), teacher candidate beliefs about diversity and inclusion (Silverman, 2010), academic success (Friesen, Hickey, & Krauth, 2010), and levels of health and wellness of students in inclusive settings (Timmons & Wagner, 2010). Few studies have examined how jurisdictions can monitor and troubleshoot obstacles which occur throughout implementation, nor the changes that resulted *after* inclusion was implemented.

From Philosophy to Implementation

Further, we posit that because inclusive education is rooted in philosophy, there is little concrete and specific direction provided which would guide schools and districts into successful implementation. This appears to hold true for other countries who are attempting to enact inclusive education philosophies. For example, countries such as South Africa, Austria, Nepal, and the United Emirates have recently struggled to identify the gaps between policy and practice (Alborn, 2017; Bešić, Paleczek, Krammer, & Gasteiger-Klicpeva, 2017; Dreyer, 2017; Neupane, 2017). In terms of the Canadian context, Crawford (2008) noted that a national plan and specific measurement methods for transforming schools into inclusive educational environments is needed. In particular, he advocated for a) monitoring of trends such as human rights complaints, b) using student surveys, c) tracking changes in the number of special education classrooms and commensurate policies, d) assessing and monitoring baseline practices in segregated classrooms, and e) identification and monitoring of short and long term goals.

We recognize the challenge of moving from broad conceptualizations of inclusive education that are expressed in policy statements, to its operationalization in terms of measurable indicators. Indeed, the complexity of educational contexts presents a challenge when moving from broad theory to specific program planning and implementation (Cronbach et al., 1980); abstract definitions based on static conceptions become problematic in the face of changing social realities (Loreman et al., 2014). In spite of this, frameworks for understanding and measuring the indicators of inclusive education, such as the logic model, provide useful direction for going from abstract to concrete, and envisioning actual implementations of inclusive programs within specific contexts. Importantly, logic models build in consideration of assumptions and the role of internal and external contextual factors as the programs unfold. As Kirby (2017) identified, the very assumptions on which inclusive educational poli-

cies are based, need to be scrutinized. We now discuss the logic model framework, and its application to the inclusive education agenda.

THE LOGIC MODEL

The logic model has been used extensively for large scale program evaluation (Atler & Murty, 1997; Hernandez, 2000; McLaughlin & Jordan, 1999; Newton et al., 2013). It provides a graphic (see Figure 1) and visual means to depict program components and the relationships among resources, program outputs and actions, and the desired outcomes of the program, both in the short-term and the long-term. Logic models also identify the assumptions and theory that underlie the actions. Importantly, the logic model is steeped in theory of action and change. That is, it makes clear the intended connections between actions and outcomes, including program impacts.

The components and visual structure of the logic model will vary depending upon the program or initiative which is being analyzed. Typical components include: *Inputs* (material and non-material resources that the program is composed of), *Assumptions* (concerning conditions for successful implementation of the program, such as physical facilities, and stakeholder buy-in), *Activities* (actions that demonstrate program implementation), *Outputs* (data concerning levels of activity), *Outcomes* (short, medium, and long term results of implementation), and *External Factors* (conditions that influence program effects on outcomes).

Logic models serve many purposes. A primary purpose is evaluative: logic models help evaluators to understand program components, to identify the intended mechanisms, and to measure the results. For example, the logic model was used to examine the effectiveness of an on-line reading program for science education (Jaciw, Schellinger, Lin, Zacamy, & Toby, 2016). The logic model was also used to determine the impact of Daily Physical Activity (DPA) on child fitness levels. In the latter case, the model helped to identify why implementation was falling short of expected outcomes. This, in turn, leads to a consideration of the scale and timeline of implementation, and importantly, the costs of program activities and data gathering to demonstrate its occurrence and impact.

While it is often the case that logic models succinctly describe well-developed programs, as in the examples above, they can also help us to understand initiatives that are preliminarily or broadly articulated (like inclusive education), and map a plan to make them concrete in order to evaluate their consequences, and/or to identify where implementation may be breaking down. In the current paper, we assume that policies concerning equitable and inclusive education exist and are well articulated, but their translation into practice is only partially realized (which appears to reflect the realities in other countries noted earlier). While this may be the case for various reasons – for instance individual districts have to make hard financial choices about their program – the logic model framework can help with thinking through and translating policy statements and visions into terms that represent concrete and implementable programs.

Figure 1. Logic Model Template



Other Frameworks

Recent literature on indicators of inclusive education includes frames developed by Kyriazopoulou and Weber (2009) which can be considered to share core elements with the logic model framework. Specifically, they include inputs, processes and outcomes (with “processes” aligned to what is labeled “activities” in the logic model framework). However, the logic model framework goes further in three respects. First, it addresses both assumptions and external factors (which can vary substantially from country to country). Because logic models consider the specific educational and cultural context, key questions address the conditions that would prevent a program of inclusion from even getting off the ground, as well as the attributes of students, teachers, schools and communities that may interfere with, or facilitate, program processes. Successful implementation involves making these assumptions explicit, and responding to them. Second, logic models are closely connected to the language of measurement: program processes (activities) translate into outputs (data on levels of activity) and outcomes which may be assessed in the short-, medium-, or long-term. Importantly, the expectation is that impacts will be measured. Third, the logic model framework connects directly to issues of instrumentation, evaluation design, and analysis: it is something to be set in motion, tested, and refined. It is a comprehensive and malleable blueprint.

In logic model terminology, “process” is reserved for the full span of program implementation, from provision of inputs to measurement of impacts. The “process” includes assessment of external factors that moderate program effects and mediation of effects (Baron & Kenny, 1986; Kraemer, Wilson, Fairburn, & Agras, 2002). Further, evaluation that is informed by logic models is meant to be dynamic and iterative – it begins with a vision that leads to empirical results, to re-evaluation and further refinement of the vision. Logic models map the intended and envisioned pathways of a process and program. They map the possible. Therefore, one way to use the logic model template is to “begin with the end” in mind. We now specifically describe what an inclusive educational setting might “look” like, focusing on the outcomes that one might hope to achieve by operationalizing a philosophy of inclusion of children with learning disabilities.

INCLUSIVE EDUCATION - THE DESIRED OUTCOMES

For the purposes of our descriptions, we have divided up our “picture” by the individuals who might typically be involved in public education - students, teachers and support staff, administrators, and parents. We describe an image of each group of individuals.

Students. In an inclusive educational setting all students would feel safe and welcomed. They would be able to become fully engaged in the life of the school - sports, clubs, social activities, learning. There would be social networks so that every individual could feel connected to other students. Every student would be able to articulate positive attitudes and beliefs about diversity, and demonstrate tolerance, respect for differences, and model social justice. Every student would have a minimum level of emotional wellbeing and health. All students would have access to the supports or opportunities, with the appropriate level of intensity and duration, to allow them to reach their full potential.

Teachers. In an inclusive educational setting, teachers would have the appropriate level of training and experience to effectively plan and deliver differentiated educational programs (Tomlinson, 1999) rooted in principles of universal design for learning (Rose & Meyer, 2002) within the general education classroom. Teachers would be able to articulate positive attitudes and beliefs about the importance of diversity in a pluralistic society, and have a fundamental belief that all students can learn. These teachers would be committed to developing attitudes of social justice and model these behaviours for their students, parents, and the wider community. Teachers would have experience, and be comfortable working, with a variety of exceptionalities (such as learning disabilities) or unique personal traits. They would have the skills to work collaboratively with other professionals and parents in order to provide appropriate programming for the benefit of all students in the school. These teachers would be flexible and willing to adjust pedagogy, as needed, and have adequate time to plan and coordinate services. They would feel supported by the administration, and have a sense of shared vision and purpose.

Principals. School principals would be the leaders and champions for inclusive education, emulating positive attitudes and beliefs about social justice and equal access to quality educational programming for all students. Principals would use creative scheduling to maximize the facilities and programs for the benefit of all students, and allot sufficient time to facilitate collaboration among all members of the educational team. These principals would effectively support and encourage parent participation, and leverage community support to access additional funds and services for the students and families within his/her charge.

Parents. In a robust and cohesive inclusive educational setting, parents would feel satisfied with the quality of the education that their children are receiving, and be confident that the unique learning needs are being addressed. Parents would feel that they are valued members of the educational team.

This is but one “image” of what an inclusive educational system might look and feel like for the participants. Next, we consider this vision and translate the narrative into terms of the logic model framework. Drawing, in part, on policy documents from British Columbia and Ontario, we will address the inputs, outputs and outcomes, as well as assumptions and external factors that could serve as barriers to, or catalysts of, change. Therefore, the next section fits the vision of a desired program of inclusive education described above, into the logic model frame, recognizing that schools and educational jurisdictions would have to further specify many of the indicators used to gauge whether implementation actually worked in their contexts.

THE IMPLEMENTATION OF INCLUSIVE EDUCATION USING THE LOGIC MODEL FRAMEWORK

Our approach is to take the concrete and desired outcomes of programs of educational inclusion (stated in the last section) and consider them relative to the general goals that are codified within policy documents. To create the model, we refer, in part, to documents from the two provinces of interest - Ontario and British Columbia. We focus specifically on *Special Education Transformation (SET)* (Ontario Ministry of Education, 2006), and *Equity and Inclusive Education: Going Deeper (EIE)* (Council of Ontario Directors of Education, Working Document, 2014). The broader

policy goals make clear the assumptions behind specific programs and their implementation that may be captured through a logic model. *Diversity in BC Schools: A Framework (DBCS)* (BC Ministry of Education, 2008) refers to pertinent federal and provincial legislation to justify the need to transform schools, and focuses on a wide range of minority status groups and students with special learning needs. (For the purposes of this paper, we have focused exclusively on students with learning disabilities.) Within this broader framework, statements of policy visions may be considered fundamental inputs based on core societal assumptions that set the stage for going forward with specific program implementations. The logic model is based on broad vision statements, and general theories of change, but as a blueprint for change, it drills down further to articulate specific implementation activities and measurable outputs and outcomes that result.

Using the documents from Ontario and British Columbia noted above, we create a logic model for a **generic program** of inclusive education geared to children learning disabilities. It is important to keep in mind that the logic model translates: (1) policy statements into concrete courses of action within specific contexts, (2) broad goals into specific outputs and outcomes that can be monitored and evaluated, and (3) general theories of change into specific posited causal pathways that indicate prior and later outcomes.

Assumptions

Logic models identify assumptions about the basic conditions under which program implementation is expected to occur. A first step in applying the logic model framework is to identify assumptions, often implicit, that would prevent a program from even getting off the ground, or that stakeholders must seek agreement on if the program is going to work. They may include the following:

- Conditions of basic “buy in” into a system of inclusive education: Specifically administrators, teachers and parents either want inclusive education to begin with, or buy-in can be created through information and modeling of successful systems.
- An attitude of openness to change is present generally within the district at all levels.
- The district is open to a paradigm shift – moving from the idea of “fixing kids” to integrating and accepting students with exceptionalities.
- Boards are left to their own devices to develop programs for inclusive education.
- Resource availability is the primary driver of what goes into the program and the speed and scale on which it is implemented in the district. (Without adequate financial supports, it is difficult to sustain a model of inclusive education.)
- There may be an expectation from governments concerning the rate of implementation and scale-up of the program, and funding agencies may require indicators that allotted funds are being used for intended purposes.

- There do not exist major competing initiatives or other district-wide impediments that interrupt implementation of programs of inclusive education.
- Modeling of environments demonstrating successful inclusion practices is critical to scale-up of those systems and practices across the district.

Inputs

Inputs are the material or non-material components of the program. The logic model framework identifies inputs with a view to their implementation and indicators of their use. We include the following among inputs of a program of inclusive education:

- Policy documents that articulate a shared vision of inclusive education.
- Funding from a variety of sources.
- Professional development and training opportunities for educators, administrator and support staff, that addresses:
 - General principles of inclusiveness for students with exceptionalities
 - Principles for addressing the diversity among students with exceptionalities (Learning Disabled, Gifted, Twice Exceptional)
 - Examples of classroom practices that promote inclusiveness
 - Resources and services available through the district to support individual practitioners in their efforts at inclusive education
 - How to effectively communicate with and engage parents in the process of creating inclusive environments.
- A curriculum that emphasizes inclusiveness and allows its modeling and practice.
- A system with intensive supports for creating inclusive environments on a smaller scale within the district (e.g., within specific schools) that can be modeled as part of a district-wide scale-up.
- Demonstration and support opportunities that allow staff across the district or jurisdiction to observe successful implementation of inclusion being modeled, and take back and apply to their own school or educational context.
- Adaptations to buildings, including within classrooms, to facilitate inclusiveness.

Output

The logic model associates outputs with instrumentation for obtaining accurate measures of what is actually taking place with the program implementation. Based on the inputs specified above, outputs may include:

- A record of attendance of stake-holders (educators, administrators and support staff) attending professional development and training opportunities, including the location, schedule of the events, and list of trainers and university researchers.

- Demonstration that the content of the professional development is in accordance with general recognized principles of inclusive education, through a checklist of principles that would include differentiated instruction, universal design, approaches to peer-to-peer learning.
- Demonstration that policy documents are present and utilized (perhaps by having the documents on site and through the production of district or school plans for inclusion that are linked back to the general goals and vision statements of the documents).
- Demonstration that teachers are aware of resources/supports for promoting inclusive education (e.g., through teachers' responses to surveys on the topic).
- Indication that a model inclusive environment is created on a smaller scale (e.g., in one or two schools in the district) within a specific time-frame (e.g., through checklists to show that inclusionary practices are established in those environments).
- A record that professional staff across the district has had the opportunity to observe the functioning of a model inclusionary environment in the district (e.g., documented through release time and participation in model environments and/or personnel from model schools who are released to work with staff across the district).
- Indication that funds allotted for promoting a program of inclusive education are provided to and spent by the district (demonstrated through an audit.)

Levels of outputs reached may be informative for further program implementation. Thresholds may also be considered. For example, a district may set targets for how many teachers should be able to identify district supports for promoting inclusive education. Certain targets may be set within schools (e.g., two years after the start of implementation, at least 80% of teachers in specific schools will be able to identify the supports available for promoting inclusive education), or across the district (e.g., two years after the start of implementation, at least 80% of teachers in at least 75% of schools will be able to identify the supports.) The latter threshold implies a model of scaling the program up throughout the district. The scale-up model will depend on the funds available, and on theory of how to best sustain and disseminate programs. Sudden full-scale implementation may or may not be desirable. An alternative approach to dissemination of practice, which we used as an example in the logic model components described above, is to select model schools, and achieve successful implementation there, before expanding the program further throughout the district.

Outcomes

The logic model framework sequences outcomes from short- to long-term. Short term outcomes are thought of as mediators of the program impact on more distal outcomes. This means that impacts on more distal outcomes, such as achievement, are not expected to happen without impacts on more immediate outcomes.

Outcomes are differentiated from Outputs in that they could, in principle, be assessed under "business-as-usual" conditions. That is, while outputs are measures

of program implementation activities, outcomes are indicators of the *benefits and results* of the program for beneficiaries compared to where they hypothetically would have been without the program. For example, one could look at changes in levels of outcomes through a pre-post design that follows schools from before to after they implement a program of inclusion, or through a non-equivalent comparison group study where schools that adopt an inclusive educational program are compared in terms of outcomes to similar schools that do not (Shadish, Cook and Campbell, 2002). Scale-up of a program which is gradual, with schools being added each year, allows for a dynamic comparison that can capture changes that coincide with movement to inclusion across the staggered uptake schedule. Short term outcomes may include:

- A change of belief systems concerning inclusive education among teachers, principals and other staff (as demonstrated through surveys and instruments, focus groups.)
- Increased knowledge of exceptionalities, such as learning disabilities (demonstrated through an anonymous assessment of administrators' and teachers' knowledge)
- An increase in practices demonstrating principles of inclusive education:
 - An environment of high expectations for all (e.g., the annual goals on a student's IEP reflects content standards from the general education curriculum.)
 - Membership and full participation of students with exceptionalities in the general education classroom (e.g., reduction in the use of pull-out or segregated practices.)
 - Supports are present to augment communication where needed (demonstrated through a review of classroom adaptations)
 - Curriculum and instruction are designed to accommodate students with exceptionalities by being presented in a variety of accessible formats (demonstrated through a review of classroom materials and adaptations)
 - Instruction reflects principles of universal design for learning to support multiple, flexible methods for presentation, expression and engagement (demonstrated through lesson plans, and classroom observations)
 - Use of creative scheduling to allow teachers to effectively plan and co-plan to integrate students with exceptionalities.
- Greater engagement of parents in the decision process (demonstrated through parent and teacher surveys)

Long term outcomes may include:

- An increase in students' sense of safety, engagement in school, emotional well-being (demonstrated through an anonymous survey of a random sample of students).
- Increased student actual engagement in schools (demonstrated through increased participation in sports clubs, social activities).

- Increased academic achievement (demonstrated using standardized achievement test.)
- Post-school benefits, including application to, persistence in, and graduation from institutions of postsecondary education, employment in adulthood, and other quality of life indicators (as demonstrated through post-graduation surveys to former students and parents).

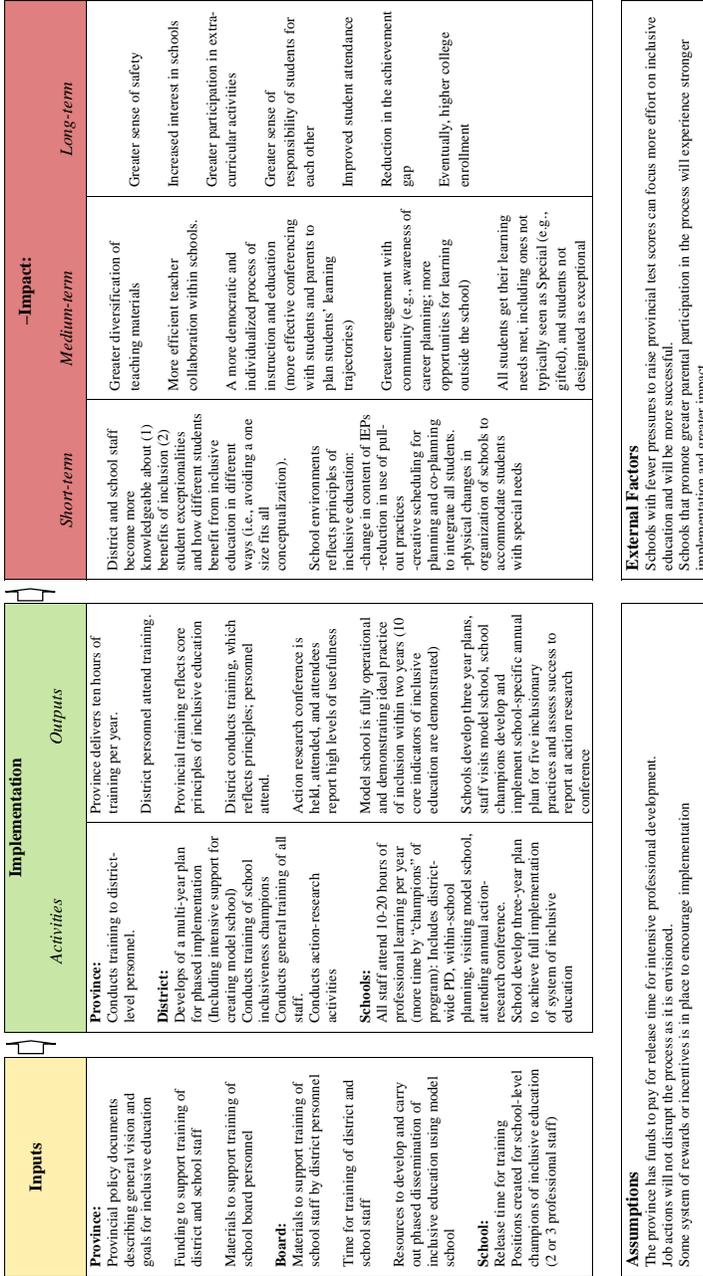
External factors

Program implementers are challenged to identify contextual factors that can have a bearing on the intended processes across the logic model. Implementation activities may advance successfully or be obstructed, and impacts may be moderated by characteristics of individuals and settings. Within the logic model framework, the effects of external factors are represented in terms of arrows that influence the intended flow of the process from activities/outputs through short and long term outcomes. Relevant questions include:

- Generally, are competing initiatives presents at the school (or in the educational jurisdiction) that would take away resources from programs of inclusive education, especially from the implementation of specific components?
- Are resources sufficient to achieve the levels of implementation across the multiple program components?
- What are the characteristics of schools, teachers and students that may moderate the impact of the program on the long-term outcomes (e.g., should we expect a uniform impact on emotional and achievement outcomes across all types of exceptionalities, or will the benefits accrue differently for different kinds of students? For example, how will students with learning disabilities, or twice exceptional students, be affected by a program of inclusive education? Also, are there specific school environments in which movement to inclusion is especially challenging?)
- Is a program champion at each school essential for garnering support, pulling together resources, organizing activities, maintaining communication with the district and facilitating measurement of key indicators of implementation in order to have successful implementation, and ultimately, impact?

We have identified potential considerations for a school district, province, territory, or country to include in a logic model framework (Figure 2). We based this on documents from two educational jurisdictions in Canada, Ontario and British Columbia, as well as our “vision” of what inclusive education might look like. It would be instructive in future studies to examine the current practices within specific jurisdictions to determine “where we are” and important next steps to ensure the realization of more inclusive educational environments.

Figure 2. Inclusive Education Logic Model



CONCLUSIONS

Educational inclusion is a philosophy and movement which is supported by societies world-wide. As with any change in organizational structure and philosophical orientation, small, planned steps are required in order to ensure success. A systematic mapping of the steps of the process of implementation is necessary to reveal specific preliminary and secondary outcomes (most importantly student academic and social success), and provide evidence on which to evaluate and understand policy and program efficacy. In addition to mapping the steps, logic models help to identify where the process of implementation may be breaking down. This is vitally important for countries such as South Africa, Austria, Nepal, and the United Emirates, in addition to Canada, which have struggled with the implementation of the inclusive education philosophy.

Approximately 4 to 10% of all school-aged children in Canada have some sort of disability which affects their ability to learn and achieve (Timmons, 2006). Canada began the movement toward inclusive education over 30 years ago, yet much remains to be done to ensure that all children have fair and equitable access to public education in general education classrooms. This paper has demonstrated the use of the logic model framework with which jurisdictions can employ in their own educational contexts in order to help realize the dream of a fully pluralistic and inclusive public education system.

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