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Helpful Organizational Features of a Community-Linked Research Unit: A Qualitative Study

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Abstract

There is a growing number of research units and alliances whose purpose is to link researchers and community partner groups. Little has been published about the benefits of these research organizations, the characteristics that assist them to function, and how they evolve over time. This article describes the findings of a survey of 13 investigators and research coordinators from CanChild Centre for Childhood Disability Research, a multidisciplinary research unit founded in 1989. The article describes this group's perceptions of CanChild as an organization, including major helpful factors, lessons learned, and changes over time to the Centre's approach to research. The purpose of this paper is to provide information to researchers, managers, and funders about the benefits of community-linked research units. The study themes, revealed through qualitative methods, indicate the importance of three overarching aspects that summarize helpful organizational factors of a community-linked research unit: awareness of environmental context, strong commitment of team members, and an emphasis on internal and external communication activities. The findings demonstrate the collaborative advantages of community-linked research partnerships with respect to the cross-pollination of ideas and approaches, sophistication in conceptualization of research studies, smoother coordination of activities, and the development of innovative concepts and products.

Introduction

Increasingly, research addressing social or health issues is being conducted by research units and alliances linked to community partners, which are often multidisciplinary in nature.^{1,2} Research units are single entities whereas research alliances bring together groups that share resources and expertise.^{3,4} Despite different structural models, these organizations have common functions. They are engaged in knowledge generation, knowledge sharing, and the development of research knowledge and skill in target audiences such as university students and service providers.^{5,6} The presumed benefits of research organizations include enhanced research productivity, greater innovation and interdisciplinary synthesis, and more effective knowledge transfer to the targeted community partner, resulting in positive influences on communities, systems, and policies.^{7,8}

Given the proliferation of research partnerships¹ and the increasing availability of funding for these endeavours, it is surprising that little evidence exists for their presumed benefits.^{5,9} Articles have examined the group functioning of collaborative research teams rather than organizations.^{10,11} Nanna et al. have written a commentary on the planning and development of clinical research units focusing on rehabilitation medicine.⁷ They consider the benefits of these units to be increased productivity, financial support for experienced research personnel, and the education of novice researchers. To our knowledge, studies have not addressed the organizational characteristics or benefits of research units linked to a community partner.

CanChild Centre for Childhood Disability Research, based at McMaster University in Hamilton, Ontario, has been funded by the Ontario Ministry of Health since 1989, the beginning of their health-system linked research unit program. Researchers who visit *CanChild* have encouraged us to share our insights. This information may be useful to other research organizations, funders of collaborative research initiatives, and health or social service managers with an interest in organizational performance.

The literature on organizational behavior provides a useful context in which to consider the functioning and benefits of research organizations. This literature outlines the factors influencing organizational effectiveness, including the degree to which values are shared among team members, members' motivation and commitment, and shared organizational vision.^{13,14} According to Marson, innovation and commitment flourish in organizations that promote a commitment to quality, recognize performance, have people-centered management styles, and have visions that motivate people.¹⁵

Rainey provides a useful Framework for Organizational Analysis, which outlines 10 major types of characteristics that can be used to analyze any organization.¹⁶ These characteristics are environments, tasks/technology, goals/values, leadership/strategy, culture, structures, processes, incentives, people, and organizational performance/effectiveness.

It also is important to consider the change or evolution of organizations. Research on organizational life cycles has identified four stages of organizational development.¹⁷ In the entrepreneurial stage, members marshal resources and establish the organization's viability. In the collectivity stage, members develop high cohesion and commitment. In the formalization stage, there is more control over how the team operates. In the elaboration stage, an organization seeks new ways to adapt, renew itself, and expand its domain.

This article describes the findings of a survey of 13 investigators and research coordinators from *CanChild* Centre for Childhood Disability Research. The article describes this group's perceptions of *CanChild* as an organization, including major helpful factors, lessons learned, and changes over time to the Centre's approach to research. The intent was *not* to provide concrete examples of meeting frequency or details of the roles and responsibilities of team members; rather, the intent was to provide a broader perspective with respect to important conceptual features of research units. We begin, however, by describing the overall structure, mission, and research themes of *CanChild*, to provide tangible background information.

Description of *CanChild*

Structure

CanChild is a multidisciplinary team of researchers from occupational therapy, physical therapy, speech-language pathology, pediatric medicine, psychology, epidemiology, and biostatistics. The Centre is affiliated with the School of Rehabilitation Science at McMaster University, sponsored by McMaster University and the Hamilton Health Sciences Corporation, and formally partnered with the Ontario Association of Children's Rehabilitation Services (OACRS), which consists of 19 publicly-funded children's rehabilitation centres in the province of Ontario, Canada. *CanChild* conducts research relevant to service provision in these centres, shares findings with them, and supports the development of research skills and evidence-based practice. The OACRS centres support *CanChild* through advice, consultation, and access to clients, families, and service providers.

Infrastructure support from the Ontario Ministry of Health supports corporate endeavors, salaries for core staff, the development of research studies, and dissemination and research education activities. The Centre's research is, for the most part, funded

externally. Between 1989 and 2002, investigators and collaborators held 91 externally-funded grants totaling over \$17 million Canadian. Between 1989 and 2002, largely through external grant funding, the total staff grew from 6 to 36 people, including researchers, project-supported research personnel, and business and administrative staff.

Team meetings of investigators and core research support staff are held every four to six weeks. These team meetings involve information sharing, project updates, and presentations on topics of interest, designed to create a learning environment. Strategic planning takes place at yearly retreats. Ongoing committees focus on communication issues (i.e., external dissemination, website maintenance) and on internal resource issues (e.g., computer maintenance, hiring, identification of needed resources, resource allocation). Project teams, which are multidisciplinary in nature, meet on a regularly scheduled basis to implement projects funded by external research grants.

Mission

CanChild's mission is to maximize the participation and quality of life of children and youth with disabilities and their families by (a) conducting research on childhood disability, (b) transferring research information and findings into practice, and (c) providing educational opportunities for students, service providers, consumers, and policy makers. Knowledge transfer is accomplished through journal articles, workshops, presentations, project reports, and easy-to-read summaries, which are distributed to partner groups by mailings and are available more widely via *CanChild's* website (www.fhs.mcmaster/canchild). Summaries and reports explicitly state the implications of research findings for service delivery at the organizational and health system levels.

Research Themes

CanChild has four major research themes: (1) measurement and description, (2) the evaluation of interventions, services, and programs for children and families, (3) the life experiences of children and youth with disabilities, and (4) the effectiveness of methods of knowledge transfer. Within each theme area, there have been a number of ongoing research programs. These research programs consist of a series of studies that add pieces of knowledge to an overarching issue, and are rich in offshoots such as the development of measures. The research on children's motor development typifies the sequence of activity that has occurred. A psychometrically sound measure (the Gross Motor Function Measure; GMFM) was developed to answer basic descriptive and evaluative questions, and then used with various populations of children.¹⁸⁻²⁰ Various offshoots to the main research questions occurred, resulting in the development of the Gross Motor Performance Measure (GMPM), the Gross Motor Function Classification System (GMFCS), the GMFM-66, and several multi-media self-instructional training materials.²¹⁻²⁶

Research Impact

Buxton and Hanney's "payback" model has been useful in assisting *CanChild* to document research outputs, applications, and outcomes.²⁷ Outputs refer to direct contributions to knowledge, such as published papers or products, and to multimedia self-training tools, such as manuals, videos and CD-ROMs. The next level of research impact is the actual application of the ideas, findings, and materials by service providers, managers, and policy makers. Outcomes refer to impact on the efficiency or effectiveness of health services and on client satisfaction.

In 1992 and 1996, *CanChild* conducted province-wide surveys to examine the impact of its activities on the delivery of health services in the OACRS centres.^{28,29} The 1996 survey showed that the impact of *CanChild's* work had increased since 1992. Service providers' interest in research had almost doubled (from 39 to 67%) and 26% of respondents had been involved in research activities with the Centre. Many information materials were being read by over 40% of respondents and these were considered useful by over 90% of readers. Approximately 40% of service providers reported that these materials had influenced the following four areas of clinical practice: (1) how the results of clinical assessments or re-evaluations of children were communicated to families; (2) the extent to which families were involved in decision making; (3) the use of outcome measures; and (4) the evaluation of interventions. The CEOs of the OACRS centres stated that they were most pleased with the development and adoption of family-centred service philosophy and guidelines; the use of outcome measures; improvements to clinical practice; and the enhanced credibility of the OACRS organization with policy makers.

Objectives of the Qualitative Study

The objectives of the study were to determine: (1) the benefits of a community-linked research unit, (2) the organizational characteristics (i.e., values, approaches, and ways of interacting) that team members felt were important aspects of the unit's structure and function, and (3) the ways in which the research unit had evolved over a 13 year time span.

The findings are based on information supplied by investigators, associate members, and research coordinators (for *CanChild* as a whole or for particular projects). Members of these groups play major roles in important organizational activities, including strategic direction, the conceptualization and implementation of research studies, and knowledge sharing. Investigators lead or

serve as co-investigators on projects, contribute to the strategic direction and administration of the Centre, and write dissemination materials. Associate members collaborate on projects and contribute to written materials. Coordinators have both administrative and research-related responsibilities. These groups were considered to have the most insight into helpful organizational factors on the “big picture” level.

Method

Description of the Survey

The survey consisted of instructions, open-ended questions, and a background information section asking people to indicate the length of time they had been a member of *CanChild* (to the nearest half year) and their role with the unit. Respondents were asked to think back over the time they had been involved with the Centre and to answer five questions about its benefits, characteristics, and evolution (Table 1). Interviews were not used due to the costs involved in interviewing and transcription. Analysis of written documents, including open-ended surveys, is a commonly-used qualitative technique.³⁰

The survey instructions indicated that responses would be analyzed qualitatively by a research assistant not affiliated with *CanChild* who would ensure their anonymity. They were also informed that selected quotes would be included in a journal article.

Table 1: Survey Questions

- | |
|---|
| <ol style="list-style-type: none"> (1) What do you treasure most (if anything) about <i>CanChild</i>? (2) What has been achieved through <i>CanChild</i>? These can be benefits on the personal level, the professional level, the unit level, or the inter-organizational level (i.e., our association with OACRS). (3) Please describe three lessons you have learned from your experiences with <i>CanChild</i> that would provide useful, practical advice for people wanting to start up a similar type of health system-linked research unit (this advice can consist of both “do’s” and “don’ts”). (4) What do you think makes <i>CanChild</i> work and what hinders it (in other words, what factors, aspects, or strategies serve to make <i>CanChild</i> a successful health system-linked research unit and what aspects could be improved)? (5) Looking back over the years, please think about the ways in which <i>CanChild</i> as a unit has changed or grown. In your view, what have been the major “cross-roads” or “turning points” (issues, times, events, and/or realizations) encountered or experienced by <i>CanChild</i>? These can be both good and bad times. Please describe one or two of these most important experiences. |
|---|

Participants

Thirty-four individuals (investigators, associate members, coordinators, and support staff members), who were members or staff at the time or in the recent past, were emailed a cover letter describing the project and asking them to complete the survey. They were asked to fill in their responses in the body of an attached file. Responses were sent to the external research assistant by email or by anonymously mailing a disc containing the file.

The overall response rate was 44% (15 completed surveys out of a possible 34). Due to the low response rate from research and administrative support staff (13%), only responses from the investigators, associate members, and coordinators were included in the analysis. We do not know whether the low response from support staff was due to a strike at McMaster University in which they were involved around the time of the survey, negative perceptions of *CanChild*, whether they found the questions to be irrelevant or difficult to answer, or lack of time.

The overall response rate for the investigators, associate members, and coordinators was 68% (13 completed surveys of a possible 19). The response rate for the investigator/associate member group was 67% (8 completed surveys). On average, respondents in this group had been members of the Centre for 8.5 years. The response rate for the coordinator group was 71% (5 completed surveys). Their average length of involvement, as salaried staff, was 8.4 years.

Qualitative Analysis

An inductive analysis process was used to allow relationships and themes to emerge from the data.³¹ The research assistant, who was experienced in qualitative analysis, transferred all responses into Ethnograph, a software package that facilitates the sorting of text into categories for analysis.³² The research assistant removed identifying information from the transcripts and then conducted open coding, which develops initial categories of data.³³ To protect the identities of the respondents, neither full transcripts nor responses in their entirety were shared with other members of the project group. Members of the group had access only to data already arranged according to the preliminary coding scheme.

The research assistant and first author discussed codes to reach consensus and the codes were then shared with the rest of the

research group. Group discussions were conducted to perform both axial coding (organizing codes into themes) and selective coding, where quotes illustrating the themes are selected.³³ Themes were generated to reflect the data.

Near the end of coding we realized the fit between the generated themes and Rainey's framework for organizational analysis, which specifies the major types of characteristics of all organizations.¹⁶ We present the study themes according to Rainey's framework, but it should be noted that the themes were generated inductively and grouped *after the fact* into Rainey's categories.

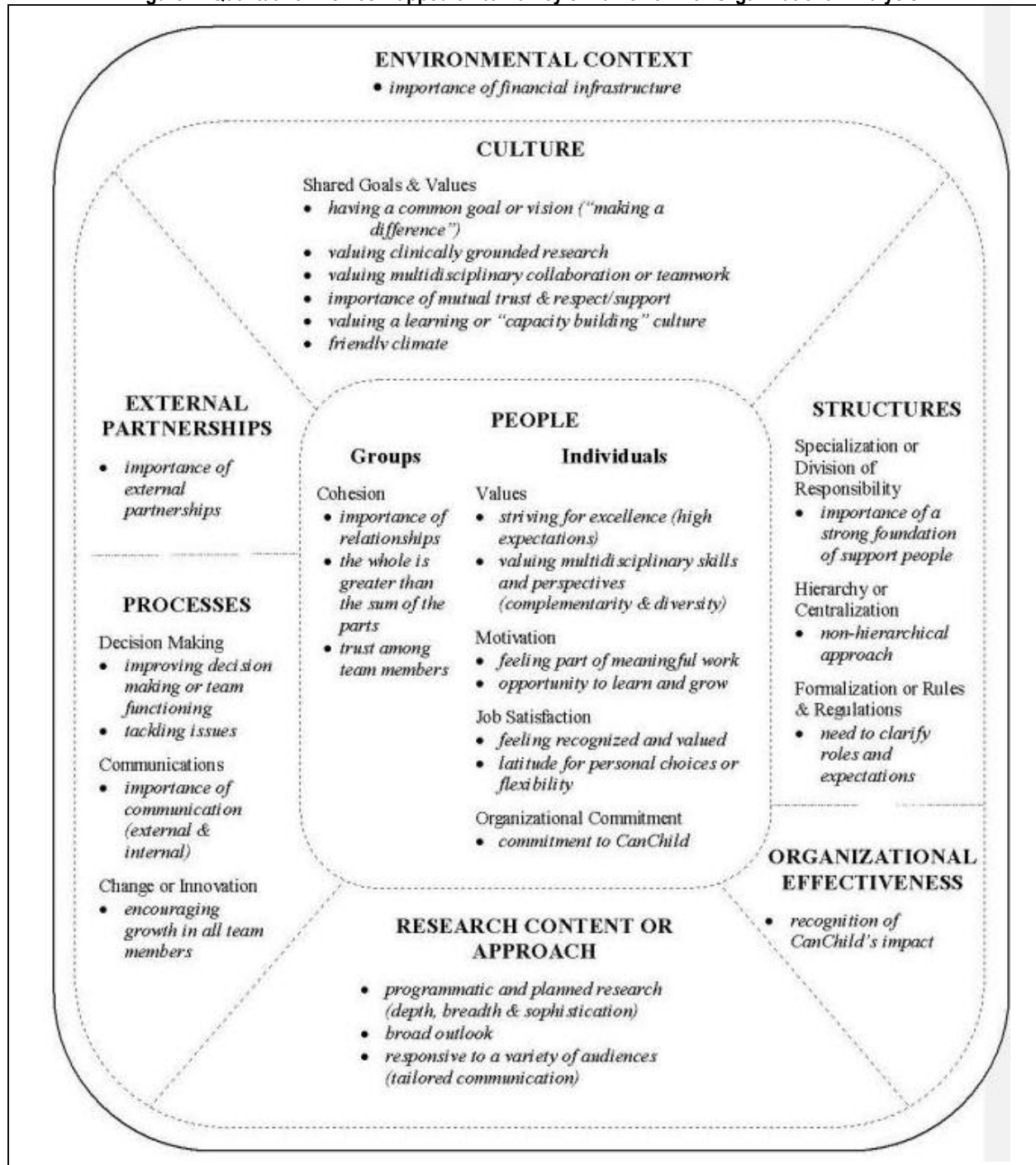
Member checking is used in qualitative research to establish the credibility of findings by checking their interpretation with respondents.³⁴ Since seven members of the research group also were respondents, member checking occurred throughout the analysis process with approximately 50% of the respondents (7 out of 13 individuals). Member checking often involves only a subset of participants.³⁴

Results

Figure 1 presents Rainey's framework which outlines the major features of all types of organizations, revised in minor ways to reflect the themes that emerged.¹⁶ The figure lists the study themes falling under each category. This figure shows that many of the themes, which pertain to characteristics of a research organization, reflect common features of all organizations. The figure also illustrates the relative importance of "Culture and People" by showing the large number of themes falling in these two categories.

The major difference from Rainey's framework is the addition of two categories titled "External Partnerships" and "Research Content or Approach." Rainey's model focuses on the internal characteristics of organizations, whereas community-linked research units such as *CanChild* operate within a broader context of linkages, accountability, and partnership. Three categories from Rainey's model (i.e., tasks/technology, leadership/strategy, and incentives) were dropped because they were not reflected in the themes. Figure 1 illustrates that environmental context is a feature surrounding all the other aspects of organizational analysis. People are located in the middle of the figure to illustrate the importance of this element in the themes.

Figure 1: Qualitative Themes Mapped on to Rainey’s Framework for Organizational Analysis



In the following table, the characteristics of organizations are described more fully and quotes are used to illustrate the themes. The material is presented according to an ecological, top-down framework, flowing from environmental context to external partnerships, culture, structures, processes, and people, and ending with a consideration of research content or approach, and organizational effectiveness.

Table 2: Categories of Organizational Features, Related Study Themes, and Relevant Quotes

Main Category	Sub-category	Study Theme	Relevant Quotes
Environmental Context (the economic, demographic, cultural, and legal conditions that influence organizations) ¹⁶		Importance of financial infrastructure	<ul style="list-style-type: none"> · [What I treasure most is the] infrastructure to support development and implementation of projects. Having this existing <i>CanChild</i> structure makes writing and submitting grants and project startup go like clockwork compared to the average researcher's situation. · I believe that good research comes from good planning up front—and when a research unit is funded year-to-year, it makes it very difficult to plan for the future and be proactive. · I think the uncertainty of our future...has made people even more appreciative of what we have. It has also forced us to reevaluate and take on new challenges, and broaden our mission and focus.
External Partnerships		Importance of external partnerships	<ul style="list-style-type: none"> · The relationship between OACRS and <i>CanChild</i> has been a 'win-win' type of situation, with each benefiting from the support and efforts of the other. [We have learned] the value of consumer involvement in the research process.
Culture (underlying assumptions, shared values, and behavioral expectations) <small>35,36,37</small>	Shared Goals & Values	Having a common goal or vision ("making a difference")	<ul style="list-style-type: none"> · [I treasure] the sense of a united purpose. · [I treasure] the spirit of collaboration—working together toward a common goal.
		Valuing clinically grounded research	<ul style="list-style-type: none"> · Focus on projects that are relevant to children, families, and service providers. · Focus on making research 'useable' to all stakeholders.
		Valuing multidisciplinary collaboration or teamwork	<ul style="list-style-type: none"> · It's all about teamwork (establishing roles, multidisciplinary contributors, sharing workload). · [What I treasure most is the] multidisciplinary nature of the unit—people bringing unique perspectives to shared issues. · I have learned the importance of partnership and teamwork...the importance of selecting team members who have the requisite complementary research skills and interests (so that all aspects of solid research—including conceptualization, operationalization, implementation, and interpretation—get covered extremely well). <i>CanChild</i> members also have strong interpersonal skills and a commitment to group goals, both of which are extremely important for a group that desires longevity.
		Importance of mutual trust & respect/support	<ul style="list-style-type: none"> · [What I treasure most is] the collaborative and supportive research culture—everyone works together to achieve their individual research objectives, and it's the working together that leads to success.
		Valuing a learning or "capacity building" culture	<ul style="list-style-type: none"> · [What I treasure most is] the opportunity for growth and skill development—investing in people for the long term. · <i>CanChild</i> has created a research infrastructure that is 'capacity building' in the sense of coaching and developing the skills of all its members.
		Friendly climate	<ul style="list-style-type: none"> · [I treasure] the great ambiance. · [I treasure] the humor people bring to their work. · [I treasure] the open and friendly investigators and staff. · [What I treasure most is the] collegiality: the project teams and <i>CanChild</i> as a whole operate in a cooperative rather than competitive fashion. There are no struggles for power.

Structures (relatively stable divisions of responsibility within an organization that include the specialization of individuals and groups, hierarchies of authority, and rules and regulations) ¹⁶	Specialization or Division of Responsibility	Importance of a strong foundation of support people	<ul style="list-style-type: none"> · Have a consistent, strong foundation (infrastructure) of support people who learn the ins and outs of research, to fully support the investigators. · Build in enough administrative support in terms of managing schedules, recording and disseminating minutes, planning agendas, coordinating grant applications and manuscripts...etc. This level of support allows investigators to channel energies to the creative aspects, knowing that the foundation is being supported by competent staff.
	Hierarchy or Centralization	Non-hierarchical approach	<ul style="list-style-type: none"> · The atmosphere and culture of the Centre are such that it is okay not to know, and to ask, and to be taught by others in a remarkably non-hierarchical way.
	Formalization or Rules & Regulations	Need to clarify roles and expectations	<ul style="list-style-type: none"> · It is very important to clarify roles and expectations of all people involved with a unit or centre, and to continue to do this over time. · [I have learned] the importance of having an appropriate amount of organizational structure, which includes things like clear expectations and ground rules for behavior. In the early years, <i>CanChild</i> struggled a bit with establishing ground rules (e.g., the importance of not revisiting decisions once they are made, the importance of deciding on authorship...early on in the development of a research project). <i>CanChild</i> has a fairly loose organizational structure...there are not always clear expectations for levels of involvement. This creates some disparity among team members, which sometimes creates tensions.
Processes (ways of operating that help people coordinate their work with one another, including decision making, communication, and change or innovation) ¹⁶	Decision Making	Improving decision making or team functioning	<ul style="list-style-type: none"> · [The retreat day] allowed us to look at our structure and put into place several things which improved our team functioning (e.g., committee structures, ground rules for meetings, building on the strengths of different team members).
		Tackling issues	<ul style="list-style-type: none"> · As a group, we are aware of when the changes and challenges seem too much, and make active efforts to talk about these tensions and issues. · We are not afraid to tackle issues or problems when they arise.
	Communications	Importance of communication (external & internal)	<ul style="list-style-type: none"> · The communication of research findings to maximize their influence on policy and practice is a formidable challenge. · The importance of good communication and considering the needs of various audiences has been a valuable lesson. · [We need] better internal communication at all levels. It is important to keep up on people's interests, studies, activities. Sharing information among support staff is not always done or done in an efficient manner.
	Change or Innovation	Encouraging growth in all team members	<ul style="list-style-type: none"> · Related to staffing and communication is an issue about encouraging growth among staff including secretaries, research clerks, research assistants, and research coordinators. More thought and effort could be put into searching out, discussing and supporting developmental opportunities for staff.

Table 1 continued

People (group cohesion and team members' values, motivation, and organizational commitment)	Group Cohesion	Importance of relationships	<ul style="list-style-type: none"> · [I treasure] the friendships—the daily opportunities to work closely with people I like and respect very much as friends as well as colleagues in their professional roles. ...This experience is unlike most other places I have worked. · I have watched <i>CanChild</i> evolve into a cohesive team. Despite having so many researchers involved, from a variety of backgrounds, everyone works well together while contributing something unique to the Centre.
		The whole is greater than the sum of the parts	<ul style="list-style-type: none"> · Everyone...is part of the greater whole and contributes to making a difference for children with disabilities and their families. · <i>CanChild</i> has provided me the opportunity to work with others who share similar research interests and become involved in projects whose scope and impact are greater than I could accomplish as an individual.
		Trust among team members	<ul style="list-style-type: none"> · The people with whom I work are people I can trust to be open and honest about issues.
	Individual Level	Striving for excellence (high expectations)	<ul style="list-style-type: none"> · This atmosphere of not wanting to let others down spurs people on to do their best and to meet deadlines. · At one time or another, all of us seem to have experienced the sense of doing far too much and needing to back away from commitments. · Lower expectations might be a good thing...people tend to set the bar for accomplishment too high. We tend to overextend our people resources and work to extremely tight timelines, which takes its toll. We need to be better at matching all our resources (including people's time) to our research goals.
		Valuing multidisciplinary skills and perspectives (complementarity & diversity)	<ul style="list-style-type: none"> · The complementarity among us...is one of our strengths, since we bring an unusual mixture of skills and styles to the action, and are enriched by our diversity. · [We need] to continue to broaden our team to include some people with very different backgrounds and perspectives. I find we can get a bit insular in our thinking and have a tendency to think we know it all or have the best answer no matter what the issue.
	Motivation	Feeling part of meaningful work	<ul style="list-style-type: none"> · [We have] a great sense of accomplishment and productivity while still having fun. · [I like] the feeling that you are part of work that is meaningful and internationally important.
		Opportunity to learn and grow	<ul style="list-style-type: none"> · Because <i>CanChild</i> is a multidisciplinary team, and has a supportive environment, I have been fortunate to learn on levels and grow in ways that I'm certain would not be provided in other research endeavors I might have pursued.
	Job Satisfaction	Feeling recognized and valued	<ul style="list-style-type: none"> · [This is an] environment where everyone...is valued and recognized.
		Latitude for personal choices or flexibility	<ul style="list-style-type: none"> · Fluctuations in involvement and disengagement are taken in stride, seen to be the norm, and are respected and understood by others. · [An] 'implicit' strategy that has worked well...is that people, for the most part, 'decide' what they want to be involved with....<i>CanChild</i> seems to know how to successfully motivate its team members.
	Organizational Commitment	Commitment to <i>CanChild</i>	<ul style="list-style-type: none"> · [What helps the Centre is] the utter commitment of many of its members and the reciprocal 'working together' that takes place · [What helps the Centre] is the ability of all of these 'strong' individuals to work collaboratively together with a commitment that is not seen everywhere.
Research Content or Approach	Programmatic and planned research (depth, breadth &)	<ul style="list-style-type: none"> · Developing 'programs' of research and not simply projects—has enabled us to build...bodies of work that enrich our understanding of issues much more than is usually possible with a single study. 	

		sophistication)	<ul style="list-style-type: none"> · [A turning point for <i>CanChild</i> was] the realization that we needed to think programmatically and not just about projects and individual studies. As this shift took root I believe that we began to think differently about all the things we did...we started to look at issues in different, and I think bigger, 'units.' We became more aware of the 'context' of what we were thinking about and wanting to do. · Anything is achievable over time. One can start small. The important thing is to build—ideas; people's skills, experience, and expertise; and resources. This is the idea of having a vision or ultimate goal and then just working towards that bit by bit. Bigger impacts are only achievable when one has a long-range vision in mind.
		Broad outlook	<ul style="list-style-type: none"> · Our mission, our partners, and the focus of our research have all broadened. · There also has been tremendous growth in how we think about issues, the breadth of issues we are willing to tackle, and in the sophistication and scope of our research studies. · It is the marriage of the conceptual and the practical or applied that I feel distinguishes our work, and guides how we move ahead.
		Responsive to a variety of audiences (tailored communication)	<ul style="list-style-type: none"> · When we started as a unit, our approach to dissemination was to write scientific articles and research reports and send them off to the centres. Over time, we began to share our results with participants, and this led us to different and better ways to communicate findings and research information. We became more aware of the needs of our audiences.
Organizational Effectiveness		Recognition of <i>CanChild's</i> impact	<ul style="list-style-type: none"> · We are accumulating evidence that our work...[is] making a difference—to the way people think, and practice, and do research, and measure their outcomes. · Our tallying of impact...has allowed us to capture where we are making a difference. · [There is] international recognition of [our] work—evidenced by the increasing request to 'visit' from around the globe.

Discussion

The study themes provided rich information about the helpful organizational features, benefits, and evolution of a research unit. Not surprisingly, the themes reflected the characteristics of all organizations with the exception of themes about external partnerships and research approach, which appear to be unique to community-linked research units.¹⁶ This discussion considers three overarching aspects that encapsulate the helpful organizational features reflected in the themes—awareness of context, strong commitment, and good communication. The discussion also considers changes in *CanChild's* directions, processes, and scope over time, and outlines the unique benefits of research units that are linked to community partners.

First, however, the limitations of the study methodology need to be acknowledged. The participants were investigators, associate members, and research coordinators, who together have primary responsibility for planning, management, implementation of research studies, and dissemination activities. Members of such a group likely will have different perceptions from support staff members. Furthermore, participants may have been biased to present positive aspects of *CanChild* due to awareness that quotes would be made public, although we attempted to guard against this by protecting their anonymity. We also attempted to guard against bias by having a non-*CanChild* member responsible for the interpretation and extraction of study themes, although the authors also were involved in this process. The 68% participation rate of investigators, associate members, and coordinators is somewhat low; we do not know, however, whether the nature or breadth of the study themes would have changed with more respondents.

The themes may not provide a full picture with respect to the tensions and issues faced by the unit but they indicate the importance of paying attention to particular organizational features and therefore provide information that may assist other research groups. The themes and quotes also provide a picture of what a research unit should try not to do, including trying to do too much, setting expectations too high, and ignoring issues dealing with internal communication and staff development.

Context

The themes revealed the importance of two types of context: external context (themes titled Importance of External Partnerships, and Importance of Financial Infrastructure) and the context of research inquiry (Programmatic and Planned Research, Broad

Outlook, and Responsive to a Variety of Audiences). Organizations that are aware of their environmental context are considered to be at an advantage.³⁹

Research units require support from other groups and organizations. The themes indicated the importance of recognizing what external partners contribute to the enterprise. This is especially true for a community-linked research unit such as *CanChild*, which relies on its community partner (OACRS) for information about important current issues in order to conduct clinically grounded research. Community organizations provide an important feedback loop that helps community-linked research units improve their knowledge sharing efforts by ensuring that research is relevant.

The context for research inquiry is important because it informs the development of research programs. Over time, *CanChild* has developed a broader research context, including an interest in health system level issues. This larger purview has broadened the issues that are examined, expanded the potential applicability of the findings, and has encouraged the tailoring of written communications, thus increasing the implications of the research for policy makers, managers, service providers, and families.

The theme titled Programmatic and Planned Research indicates that programmatic research involves bodies of work that are characterized by a confluence of ideas and perspectives, which enriches the understanding of an issue. At *CanChild*, synergy and creativity have resulted from a programmatic approach, as evidenced by study quotes indicating an evolution in the breadth and sophistication of research studies. Team members are able to tackle topics of bigger scope, address more complex questions, explore interesting side issues, and consider linkages between studies. This ability to be innovative reflects the unit's learning culture and is motivating to team members (Opportunity to Learn and Grow).

Infrastructure support has facilitated the development of a programmatic research approach by supporting the cross-fertilization and synergistic building of ideas among a fairly consistent core group of researchers. Programmatic research is possible only through the concerted and sustained effort of a group of individuals with complementary skills working together in a supportive environment. Wisdom is more likely to be found in contexts shaped by multiple interactive minds as is the case with multidisciplinary research units. Members of these units have the time needed to develop ideas through long gestation periods involving brainstorming and pilot work, and time to consider thoroughly the implications of bodies of findings for potential users.⁴⁰

Commitment

Commitment refers to whole-hearted engagement in an activity and encompasses a sense of belonging, wanting to contribute, and feeling recognized and valued for one's contributions. The notion of commitment captures the themes in Figure 1 dealing with Culture and People, including shared goals and values, group cohesion, values, motivation, job satisfaction, and organizational commitment.

CanChild's work is created out of a shared desire to make a difference to children with disabilities and their families through research that is relevant to clinical and managerial practice (Having a Common Goal or Vision, and Valuing Clinically Grounded Research). This vision reflects and sustains a very high level of commitment. A shared vision provides a common identity, gives coherence to diverse activities and is considered to be one of the striking characteristics of high performance teams.^{41,42}

It is noteworthy that "leadership" did not emerge as a theme in the survey. A number of individuals at *CanChild* take on leadership roles on committees and projects, so that leadership is shared (Non-hierarchical Approach). Furthermore, good leaders in collegial environments are not "seen": they empower others by inspiring a commitment to the group's vision and providing a supportive environment. Credit is rarely attributed to leaders who use indirect means.⁴³

Shared organizational values provide a foundation that guides the behavior of individuals within organizations and contributes to a sense of belonging, leading to organizational commitment.¹² Shared values are particularly helpful in complex decentralized organizations, such as research units, where it is important for team members to feel empowered in the collective pursuit of a goal and where there is a focus on continuous improvement.¹²

Members value "making a difference," multidisciplinary teamwork, mutual trust and respect, learning, and a collegial environment. These values are an integrating and energizing force, as seen in the themes reflecting commitment to the unit and its vision, striving for excellence, feeling part of meaningful work, and having opportunities to learn and grow. *CanChild's* values reflect a combination of traditional values of public service organizations (e.g., respect, integrity, and accountability) and new values (e.g., teamwork, commitment, innovation, and quality).¹²

The themes point to ways in which research units can enhance members' motivation and satisfaction with their work. It is

important for members to feel part of meaningful work, recognized for their unique contributions, and to choose the nature of their involvement so they can engage in activities that match their interests, abilities, and time constraints. Being able to play to people's strengths depends on whether the team as a whole has complementary skills and interests. Otherwise, this type of specialization might decrease rather than enhance overall productivity.

Seven of the 11 top motivational factors for public sector employees reported by Jurkiewicz, Massey, and Brown were found in the study themes. These were the chance to learn new things, the chance to use special abilities, variety in work, working as part of a team, the chance to contribute to important decisions, friendly and congenial associates, and the chance to benefit society. *CanChild* members' motivations therefore resemble those of public sector employees.¹³

The notion of commitment also encompasses group cohesion. Here, the themes indicated the importance of relationships, trust among team members, and an acknowledgement of the synergy provided by the group (The Whole is Greater than the Sum of the Parts). *CanChild* has a collegial environment in which members value their relationships with one another, endeavor to respect and communicate openly, and feel supported to put forth their best efforts on behalf of the team. This commitment is reflected in the group process themes (Improving Decision Making or Team Functioning, and Tackling Issues).

All teams encounter issues that affect their functioning, and particular developmental tasks must be accomplished for teams to perform at an optimal level.⁴⁴ The willingness to tackle issues is a group norm that assists in resolving problems and reducing tensions. It is important for team members to acknowledge that issues exist and to address these openly, trusting that this can be done without jeopardizing relationships and improvements will be made.⁴⁵ A culture of trust is important for any successful venture involving collaboration.¹⁰ Collegial organizations that value learning and constant improvement have a good level of comfort with challenge and questioning.⁴⁶

In summary, the notion of commitment reflects many of the themes. A personal sense of commitment is influenced by organizational and personal values, and affects people's motivation, the cohesion of the group, and how issues are dealt with by the team.

Communication

The notion of communication encompasses the theme Importance of Communication and underlies other themes that require effective communication (i.e., Need to Clarify Roles and Expectations, Responsive to a Variety of Audiences, and Recognition of *CanChild*'s Impact). Good communication also is implied in Valuing Multidisciplinary Skills and Perspectives and is necessary for developing Trust Among Team Members and for Tackling Issues effectively.

Research units linked to community partners are in the business of generating and communicating knowledge to those partners and often to a wider audience. Consequently, external communication of research concepts and findings is crucial, through easy-to-read summaries and more traditional means such as peer-reviewed articles. At *CanChild*, members endeavor to be Responsive to a Variety of Audiences by tailoring communications to their needs and interests. For example, newsletters are written for parents and children involved in research studies. Internal communication also is very important and can be a challenge due to the number of activities underway and the number of people involved.

CanChild has a strong commitment to dissemination activities, as seen in the theme titled Importance of External Partnerships, which illustrated the importance of collaborations with families and the formal partnership with OACRS. Team members want to provide information that is useful to OACRS centres, in order to fulfill their common goal of "making a difference" to children and families. The unit has benefited appreciably from the connection with OACRS, which contributes to an awareness of community issues and has influenced the relevance and scope of *CanChild*'s research agenda (Broad Outlook). This type of interdependent relationship can strengthen a research organization's commitment to meeting the information needs of a partner group.

Change and Evolution

To our knowledge, there is no literature on the evolution of research units. This section therefore provides speculative ideas about the factors and processes underlying the longevity of a research organization.

The survey themes suggest that changes in how *CanChild* operates have occurred through incremental growth and through the resolution of specific issues that have provided the impetus for change (Tackling Issues). The unit appears to be in the formalization stage of organizational development, where there is an acknowledgement of the Need to Clarify Roles and Expectations and where more formal guidelines are being generated to guide how members work together. At the same time, the unit is looking to the future and seeking new ways to adapt and renew itself, which reflects the elaboration phase of

organizations.¹⁷ This is seen in quotes concerning the need to continue to broaden membership so members do not become insular in their thinking.

As may be the case with other longer-term research initiatives, *CanChild* has grown in the scope of its research agenda and the impact of its research. Its research agenda has broadened through a developmental progression of research studies (Programmatic and Planned Research), a broadening of its mission and partners (Broad Outlook), and a steady increase over time in the number of investigators, staff members, and projects. There has been a move toward an integrated multidisciplinary approach and theoretical synthesis, including the development and testing of conceptual models about predictive factors. This increasing breadth in content reflects an appreciation of the complexity of issues and a desire to study them comprehensively. There also has been an increasing sophistication in the questions being addressed and the methodologies applied to these questions. There has been a corresponding growth in the potential and realized impact of the findings (Recognition of *CanChild's* Impact). As the questions and issues that are addressed increase in scope, so does the potential for the impact of the research, both locally and internationally.

Tension naturally accompanies growth and contributes to learning and change. This is true for both individuals and organizations.^{46,47} Group tensions refer to stresses that push or pull decision making in different directions. One of *CanChild's* strengths has been its ability to capitalize on these tensions in productive ways by making active efforts to talk about issues and recognizing the value of different perspectives (Valuing Multidisciplinary Skills and Perspectives). The study quotes revealed tensions reflecting financial uncertainty and the complementary yet differing strengths of team members. These differing strengths include preferences for detail versus the big picture and for the conceptual versus the practical.

The Benefits of Research Units

What has been learned about the benefits of research units? What can such organizations achieve that would not be accomplished otherwise? The findings suggest that research units with sustained infrastructure support have impacts that are both quantitatively and qualitatively different from research conducted solely by project-based teams. The literature suggests that the concentration of resources leads to enhanced productivity, greater innovation, and more effective knowledge transfer.^{7,8} The present study provides insight into how this occurs. With infrastructure support, members of research units are able to devote time to (a) planning, which leads to a readiness to take advantage of opportunities, (b) pilot work, which contributes to the development of successful grant proposals, (c) developing innovative products, which facilitate knowledge uptake, and (d) implementing coordinated dissemination activities. These activities often get short shrift when researchers need to move from one project to another, without time and resources to engage in a more reflective, planned approach. The skills and expertise of long-term research support staff (Importance of a Strong Foundation of Support People) are crucial for the coordination and implementation of these activities.

In summary, the study identified a number of helpful factors in starting and maintaining a community-linked research unit. These factors reflected the importance of three major aspects of the functioning of a research organization: awareness of environmental context, strong commitment of team members, and an emphasis on internal and external communication. The majority of the organizational characteristics reflected in the study themes have been identified in the literatures on organizational effectiveness and team effectiveness.^{10,12,14, 15,48} The present study provides a unique perspective on how these factors play out within the context of a multidisciplinary research unit linked to a community partner, within a North American setting.

Gray has discussed the advantages of collaboration, which include the ability to conduct comprehensive analysis, to take diversified and coordinated action, and to innovate.⁴⁹ Put within a research context, the unique advantages of a community-linked research unit include the cross-pollination of ideas and approaches, greater sophistication in the conceptualization of research studies, smoother coordination across complementary activities, and the ability to generate new concepts and innovative products. These benefits reflect the notion of "collaborative advantage."⁵⁰ They are advantages that accrue from a group working together on a common goal. Sharing a vision of making a meaningful difference to the community provides direction and coherence to the efforts of a research group, and provides a springboard for commitment, synergy, and productivity.¹⁴ A strong, shared vision is the keystone to the benefits that accrue from research organizations linked to community partners.

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