International Journal of
Education Policy & Leadership

Coaching as a Knowledge Mobilization Strategy: Coaches' Centrality in a Provincial Research Brokering Network

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Abstract   Ontario's Child and Youth Mental Health (CYMH) program is a provincially sponsored initiative that aims to build school district capacity for developing research-informed school mental health policies. This article reports findings from a mixed-methods study that employs social network theory and analysis tools to explore the centrality of CYMH coaches within this research brokering network. Overall, CYMH coaches are central within these social networks, although the patterns of interaction differ from the program's original design, with some coaches being more central than others. While formal CYMH professional development events appear to be the most direct approach to connecting research, policy, and practice, informal social networks provide the support necessary to make sense of research-based materials for use in local policymaking.

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Introduction

Publicly funded institutions and social systems have experienced an increasing pressure to use research-based knowledge[1] to inform policy and decision-making activities (Cooper, Levin, & Campbell, 2009; Davies, Nutley, & Smith, 2000). While the scholarly conversation around the role of academic research in public policy is not new (see Weiss, 1979), the current accountability era has reinvigorated international interest in the connections between education research, policy, and practice. Many terms have come to represent the process of connecting research and practice—in Canada, it is most commonly known as "knowledge mobilization" (KMb) (Cooper, 2012). Effective KMb is an important government priority in Ontario where the Ministry of Education funds several initiatives serving to connect research, policy, and practice in keeping with its provincial research strategy (Government of Ontario, n.d.).

The focus on KMb to ensure research-informed policy and practice in Ontario's education system is concomitant with an emphasis on student health and well-being (Government of Ontario, 2014). This emphasis is a recent addition to the provincial vision, responding to Canadian child and adolescent mental health research indicating that most children do not receive adequate treatment and services despite mental health issues being the greatest health challenge that they face after infancy (Waddell, McEwan, Shepherd, Offord, & Hua, 2005). There is limited capacity in school districts to effectively deliver the services necessary to address students' needs (School-Based Mental Health and Substance Abuse Consortium, 2013) and little research on the capacity and readiness of educators to deliver evidence-based and research-informed student mental health programming (Santor, Short, & Ferguson, 2009).

This article reports on a study that investigated KMb in the context of research-informed school mental health (SMH) policy. It details a study that took a social network approach to understanding how patterns of interaction within a provincial implementation support program facilitated and/or constrained the ways in which central office leaders were able to find, share, understand, and use research knowledge for use in SMH policymaking in their school districts. The article begins with an overview of the role of knowledge brokers as important KMb agents and focuses on recent social network studies that investigated connecting research and practice in education. The findings are presented, highlighting the utility of a social network perspective in exploring the centrality of brokers in KMb contexts. It concludes with a discussion of these findings and the implications for both researchers and policy-makers moving forward.

Knowledge brokering: Connecting research, policy, and practice

Knowledge brokering is increasingly understood as an important function of KMb (Meyer, 2010; Ward, House, & Hamer, 2009), yet it remains understudied across the social sector (Nutley, Walter, & Davies, 2007). The core motivation of knowledge brokers (KBs) is making research-based knowledge accessible and usable beyond the research community itself (Ward et al., 2009). Current definitions and descriptions of knowledge brokering work share the notion that brokers span the research-practice gap through a wide variety of activities (Davies & Nutley, 2008), and the

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field is advancing as researchers investigate the deliberate attempts of KBs in developing capacity for research use within systems and organizations (e.g., Conklin, Lusk, Harris, & Stolee, 2013; Cooper, 2014; Dobbins, Robeson, Ciliska, Hanna, Cameron, O'Mara, DeCorby, & Mercer, 2009). In their systematic review, Catherine Bornbaum, Kathy Kornas, Leslea Peirson, & Laura C. Rosella (2015) describe KBs as individuals who,

> work collaboratively with stakeholders to facilitate the transfer and exchange of relevant information. They represent the human component of [KMb] strategies as they work to facilitate interaction; develop mutual understanding of stakeholders' goals and contexts; identify emerging areas of concern warranting attention; expedite the identification, evaluation, and translation of evidence into practice and/or policy; and facilitate the management of relevant knowledge. (p. 2)

Local context informs the work of KBs (Meyer, 2010) and conceptualizations of knowledge brokering are evolving. Amanda Cooper (2014) describes eight distinct brokering functions: linkage and partnerships; awareness; accessibility; policy influence; engagement; organizational development; implementation support; and capacity building. Vicky Ward, Allan House, and Susan Hamer (2009) similarly describe knowledge brokering work as knowledge management, including finding, translating, and disseminating relevant research findings to those whose work might benefit (i.e., practitioners and policymakers); connecting research users with the researchers themselves through linkage and exchange activities; and capacity-building among both researchers and research users to be able to engage in knowledge brokering work independently over time. All these tasks and functions are multidimensional and complex, making knowledge brokering work not only challenging to carry out but also difficult for empirical study.

Knowledge mobilization, more broadly, is predicated on connectedness; knowledge brokering is inherently relational work as it is rooted in the premise of connection. Connecting research-based knowledge with policy and practice renders these contexts interdependent. Jonathan Lomas (2007) characterizes effective KBs as excellent facilitators, mediators, and negotiators, who are credible, possess strong communication skills, understand the culture of both research production and research use, and most importantly, are trustworthy. The effectiveness of KBs lies not in their individual attributes but rather in the quality of relationships they are able to nurture across related contexts. Knowledge brokering is a social process (Ward et al., 2012), where relationships serve an important function in connecting research, policy, and practice (Barwick, Boydell, Basnett, O'Hara, Ferguson, & Haines 2006). Relationship building is among one of the most important factors in influencing research use (Oliver, Innvar, Lorenc, Woodman, & Thomas, 2014), and facilitating interaction is the most fundamental component of knowledge brokering work (Van Kammen, Sevigny, & Sewankambo, 2006).

Given the emphasis on connectedness and relationships in knowledge brokering work, networks have been identified as an important mechanism through which to facilitate connections and interaction (Cooper & Levin, 2010; Dobbins et al., 2009). While there is a general paucity of literature around the effectiveness of brokerage

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activities (Bornbaum et al., 2015), networks are emerging as an important brokering tool because of the ability of relationships to facilitate learning processes (Conklin et al., 2013).

However, in much of the existing literature, the understanding of networks is limited, with the term most often referring to a group of people coming together to use research around a shared interest. While this is a necessary network antecedent, from a sociological point of view, the actual network emerges through the examination of the patterns of interaction among members within it (see Rodway, 2015a), and understanding how those relational patterns mediate desired outcomes. To do this, however, it is necessary to expand research knowledge beyond conventional skills sets and focus on methods that enable a closer examination of these social spaces.

A social network approach to studying knowledge brokering

A social network perspective enables researchers and practitioners to get beneath the surface of the network (Rodway, 2018), highlighting unique tools and methods that overcome some of the challenges of conventional research approaches in studying relational spaces. Interest in social network theory and analysis as an approach for empirical study is growing (Borgatti & Foster, 2003), although to date it has been applied in only a handful of education studies that investigate research use in practice settings. Cynthia Coburn (2010) used social network methods, for example, to examine the sources of research knowledge used in school district decision-making around instructional matters. Her study highlighted the importance of external organizations that act as intermediaries that build awareness of, provide access to, and help make sense of relevant research-based knowledge for use within the district. Alan Daly, Kara Finnigan, Stuart Jordan, Nienke Moolenaar, and Jing Che (2013) also conducted research on evidence use employing a social network perspective to consider how research evidence was diffused and used within and between low-performing schools in an urban school district. Their work highlighted the inequity of information systems in the school district by demonstrating how the most underperforming schools were peripherally situated within district information networks with lower levels of information brokerage activity on behalf of their area superintendent. These studies, as well as other research that takes a social network approach to understanding schools and school systems (e.g., Moolenaar, 2012; Spillane, Shirrell, & Sweet, 2017), emphasize the value in understanding how social structures affect outcomes.

A core tenant of network theory asserts that some individuals are more structurally important than others within a social network (Scott, 2017). Depending on the context of study, there are many different concepts that identify important network actors; prominence is one such concept and the focus of this article. Prominent people in a network are more visible to others (Wasserman & Faust, 1994), and they occupy positions of advantage within the social context (Borgatti, Everett, & Johnson, 2013). Because of their position within the social network, they enjoy privileges that others do not—easier access to resources, for example. It is easier to determine what is happening within a network when it is possible to identify prominent figures and examine the conditions that contribute to their centrality (Prell, 2012).

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Centrality is a core concept used to identify key figures within a network. There are many different types of centrality that emphasize the differing ways people can be central in a network (see Borgatti et al., 2013). *Degree centrality* is a simple measure that identifies the most "popular" individuals in a network by calculating the number of ties (or interactions) they possess with others in the network (Carolan, 2014). Degree centrality can be further understood in relation to the direction of a tie: *outdegree* relates to resource-seeking behaviour (i.e., reaching out to someone), illustrating the expansiveness of one's network, whereas *indegree* relates to the provision of resources (i.e., giving someone something), identifying the sources of resources in a social network (Borgatti et al., 2013).

In Coburn's (2010) study, for example, indegree measures identified external intermediaries as important sources of research-based knowledge as they were most often sought out for this kind of information (i.e., external intermediaries received more ties). Similarly, outdegree measures demonstrated that the social networks of the most underperforming schools in the school district were restricted in size because of the low levels of resource-seeking behaviour (people from these schools were not actively seeking out research evidence). Degree centrality offers descriptive information about the patterns of interaction, providing important information about the identities of structurally important actors within a social network. In research brokering networks (see Rodway, 2015a), degree centrality permits the identification of who has the most access to and/or the most control over the resources available within it. Research use is predicated on who has access to it and who provides that access. Individuals with high indegree centrality influence what research knowledge is mobilized within a network and those with high outdegree centrality are those people most likely to have access to it.

Degree centrality scores can also be used to divide a network into two groups: the core and the periphery. The core of a network is comprised of the people who are most active within a network (and often are highly connected to each other), whereas the periphery is populated by the least active people (Borgatti et al., 2013). This is important because the core of a network is the central point of resource exchange, meaning that some network members, by virtue of their activity levels (and not necessarily formal role), may possess more control or influence over the flow of resources within a network.

There are many social network tools that can be used to investigate centrality (see Rodway, 2015b); degree centrality is but one approach to understand what is really a family of concepts that address the complex roles of prominent actors in social networks (Borgatti et al., 2013). In keeping with earlier investigations into research use employing a social network perspective, this analysis uses degree centrality to identify who is brokering research-based knowledge across Ontario's Child and Youth Mental Health Program (CYMH).

Context: Ontario's Child and Youth Mental Health Program

The CYMH is a provincially funded initiative that brings together school-based mental health professionals called Mental Health Leaders (MHLs), with program coaches (psychologists, social workers, and former senior school system administrators) who

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work together to develop the capacity to use research-based knowledge in their local policy and programming. Child and Youth Mental Health members come together in person from across the province at scheduled times throughout the year to engage in professional development sessions that focus on research-informed and evidence-based practices related to a variety of topics relevant to child and youth mental health. During the pilot years of the program—the time frame encompassed in this study—each MHL was assigned to an individual coach who served as a point of contact throughout the year. This study focused on the ways relationships between MHLs and coaches, outside of formally organized, whole group professional development sessions, supported mobilizing research-based knowledge in the development of school district mental health policies.

Methods

A descriptive case study (Yin, 2014) of the CYMH program was conducted, employing a sequential explanatory mixed-methods design (Cresswell & Plano Clark, 2011) to investigate the ways in which members' informal interactions with each other (i.e., interactions outside of formal meetings) enabled and/or restricted their abilities to find, understand, and share research-based knowledge in their local policy development work. Phase one consisted of a social network survey to collect the necessary data to map the CYMH network. The purpose of the survey was to establish professional profiles for each participant in terms of their experience with using research-based knowledge as well as describing the informal patterns of interaction among the participants outside of formal professional learning activities. The survey provides important demographic data as well as important insights about the relational patterns within the context of the program. These findings informed phase two of the study, which consisted of interviews with key informants to further probe and understand the network patterns and their influence on KMb activities.

Phase 1: Social network survey

A position-based approach was used to specify the network boundary (Marin & Wellman, 2011), inviting only those MHLs from school districts that had already established their SMH strategy under the guidance of the CYMH program. The first two cohorts of MHLs

Table 1. Participants' demographic data

Variable	Mental health leads (N = 31)		Coaches (N = 5)	
	Count	(%)	Count	(%)
Sex				
Male	2	(6)	2	(40)
Female	29	(94)	3	(60)
Degree				
Bachelor	3	(10)	1	(20)
Master	20	(65)	1	(20)
Doctorate	8	(26)	3	(60)
Work experience education setting	M = 12.4 (SD = 8.3)		M = 21.4 (SD = 12.4)	
Total CYMH	M = 20.8 (SD = 7.8)		M = 25 (SD = 11.8)	

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were invited to complete the survey (cohort 1: $n = 15$; cohort 2: $n = 16$). In addition, coaches with at least one year of experience with the program were invited to participate ($n = 6$), for a total of 37 network actors. The survey response rate was 97 percent ($N = 36/37$). Table 1 provides a description of the study participants.

The survey was comprised of two sections: a) professional attributes, and b) social networks, which queried individuals' relationships with their CYMH colleagues. These questions were modelled on survey questions previously used and validated in other social network studies (e.g., Cross & Parker, 2004; Daly & Finnigan, 2010). The roster method was used in collecting these data to reduce measurement error (Carolan, 2014; Wasserman & Faust, 1994). Respondents were prompted to consider their relationship with each CYMH member. They were asked how frequently they sought out advice, what types of information (i.e., research, data, or general information) they accessed from their colleagues, and how influential these interactions were on their practice (see Rodway, 2015b, for the full survey). The focus of this article is on the social network data (see Rodway, 2015b, for descriptions of professional profiles).

Each type of relational data collected was treated as its own separate social network within the CYMH program, yielding multiple data sets. To increase the reliability of the advice and influence data, only the strongest ties were included; that is, the ties included in this data set included advice interactions that took place on at least a monthly basis and only influence ties that were rated as at least "very influential." For the information network, respondents were asked to identify which type of information they received through the interactions: data, research, or general information. This article focuses solely on the research-based information ties (see Rodway, 2015b for details on data and general information ties).

Degree centrality was used to focus on the visibility or popularity of the coaches within these networks. Using social network software called UCINet (Borgatti, Everett, & Freeman, 2002), two degree centrality scores were calculated: 1) outdegree centrality, which measures *resource-seeking* behaviour (e.g., who was looking for information or advice), and 2) indegree centrality, which considers who is *providing resources* within the network (e.g., who was providing information or advice). Outdegree and indegree centrality scores were generated for each person and descriptive statistics were generated for both. Data were disaggregated according to cohort and role (MHLs and coaches), enabling comparisons between groups in their levels of activity within the networks. To elaborate upon degree centrality measures, core-periphery analyses were also conducted for each relational dimension.

Phase 2: Key informant interviews

The data collected through these semi-structured interviews were used to elaborate the ways in which the patterns of interaction within CYMH facilitated/constrained KMb activities. They helped contextualize and triangulate the quantitative network analyses, providing insights into why certain network features exist and what implications there may be for connecting research, policy, and practice.

Two groups participated in semi-structured interviews based on the survey data analyses. All coaches were invited to participate because of their prominence across

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each of the networks. The MHLs were invited to participate based on their individual centrality scores within the research network. Two MHLs with the highest and lowest outdegree and indegree centrality scores in the research knowledge network were invited to participate (i.e., two MHLs for each of the four categories: high/low indegree and high/low outdegree). Because many people possessed the same scores, participants with low centrality scores were chosen at random. The achieved sample included six MHLs; individuals with low outdegree scores were non-responsive. Interviews (N = 11) ranged from 30–75 minutes long; most were conducted by telephone given the wide geographic region represented in the sample.

Interview protocols were tailored to the participants' program role. The coaches were asked about their role in the CYMH program, what types of research knowledge they thought were the most pertinent to their work, and how they brokered research knowledge within the network. They were also asked questions about their perceptions of the communication patterns within the program as well as the nature of their relationships with the people they interact with the most and the least frequently. The MHLs were asked about their advice- and information-seeking behaviour and the conditions under which they sought out additional resources from their CYMH colleagues outside of their formal meetings. Interviews concluded with a question about the influence their interactions within the CYMH program had on their ability to develop evidence-informed SMH policies. All interviews were fully transcribed.

A summary table, which included sections for comments about the quantity and quality of interactions, the influence of the program on KMb activities, and the development of district SMH policies, was created for each interview and sent to the respondent for review. The summary tables were analyzed using the constant comparative method (Glaser & Strauss, 1967). Comparisons were made at three levels: 1) within a single interview; 2) between interviews within the same group (e.g., coaches, high outdegree MHLs); and 3) between interviews from different groups (Boeije, 2002). A thematic approach to coding (Saldaña, 2013) was used to identify emerging themes, developing a thick description of the network activity.

Findings
Coaches are central figures across CYMH's advice, research knowledge, and influence networks

Indegree centrality scores suggest that the CYMH coaches are central figures in all networks. Table 2 provides the descriptive statistics for the distribution of indegree scores, disaggregated by role (coaches versus MHLs) and cohort. Figure 1 provides illustrations of each of these networks.

**Table 2. Descriptive statistics for the distribution of
normalized indegree centrality scores**

Network	M_{Coach}	SD_{Coach}	M_{MHL}	SD_{MHL}
Research	30.6	19.2	6.7	9.0
Advice	20.5	8.9	6.2	6.6
Influence	35.0	21.4	4.4	6.7

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The *t*-tests, conducted using statistical procedures in UCINet (see Borgatti et al., 2013, for a description of permutation-based *t*-tests using social network data), showed statistically significant mean differences between the coaches and MHLs within the research-based knowledge network ($t = .24$, $p < .001$), advice network ($t = .133$, $p < .001$), and influence network ($t = .276$, $p < .001$). In other words, it is

Figure 1. Maps of the Child Youth Mental Health program's research, advice, and influence networks

a) Research

b) Advice
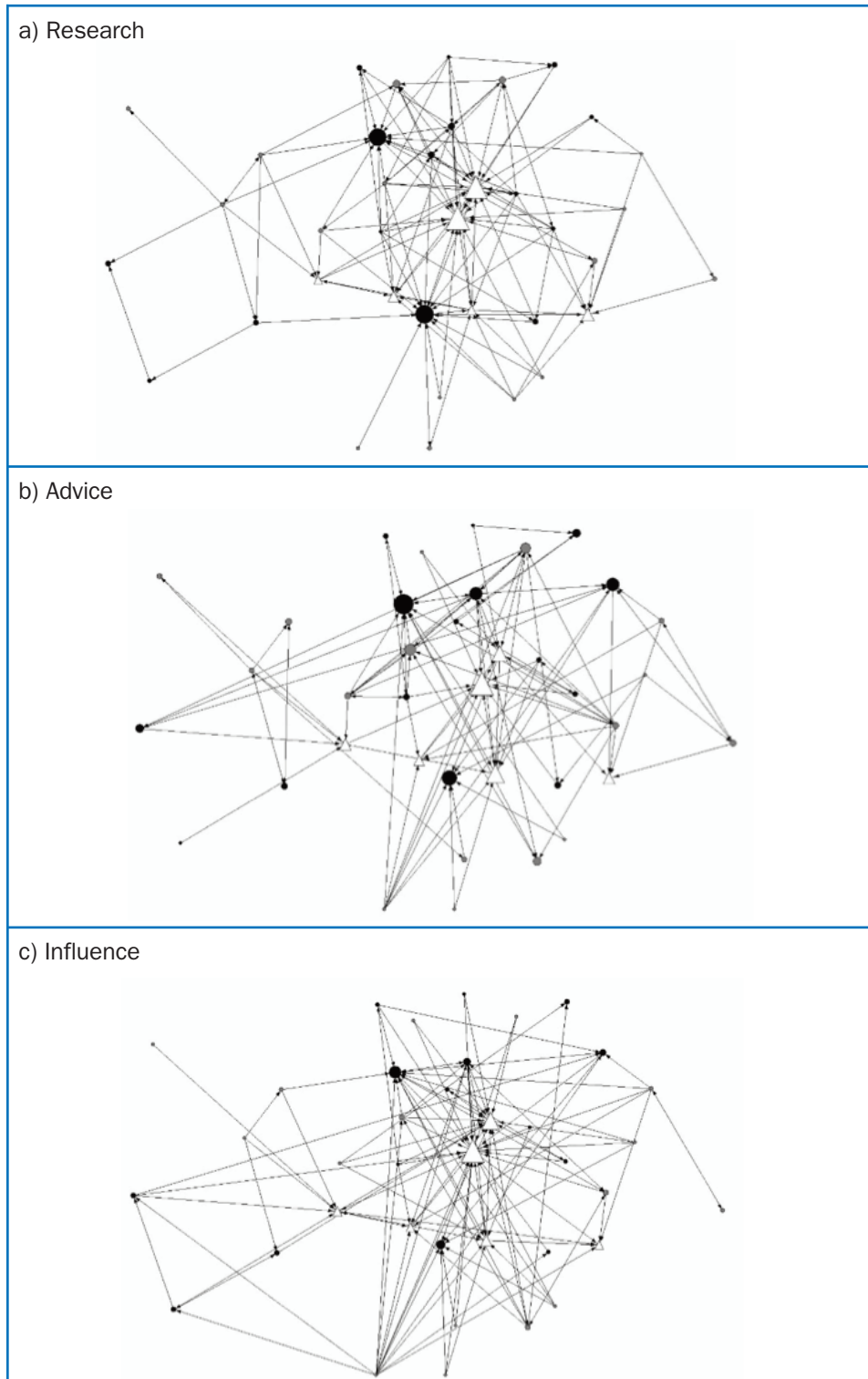
c) Influence

Note: The size of the node corresponds with indegree centrality scores; the bigger the node, the more often that person was identified as a source of research/advice/influence. White triangles = program coaches, black circles = cohort 1 MHLs, and grey circles = cohort 2 MHLs

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not by chance that the coaches are sought out more often than MHLs for resources within the context of the CYMH program.

Core-periphery analyses were executed for each network to elaborate upon which coaches were part of each network's core (i.e., the most active people within each network). All five participating coaches were core members in the research and influence networks, and three coaches were also core network members in the advice network. Consistent with the program design, coaches were interacting with MHLs outside of formal professional development settings, providing ongoing support to MHLs throughout school district policymaking processes. These results suggested that the program was achieving its goal in that coaches are active in supporting MHLs outside of formal settings. However, these analyses also indicate that fewer than half of the MHLs interact informally—they are sitting on the periphery of the network. Thus, although the coaches are central figures within the network, core network membership suggests that more than half of the MHLs are neither accessing coaches' knowledge and expertise nor that of their MHL colleagues outside of those formal CYMH program meetings. This potentially limits the impact of the CYMH program on SMH policy work in these districts. It also places the coaches and the other MHLs in a position where they greatly influence the flow of resources across the CYMH networks.

During the interviews, the role of the coaches was the most commonly reported factor contributing to the frequency of interaction within the research-based knowledge and advice networks, validating the findings of the quantitative network analyses. Interviewees universally spoke about the coaches' role in facilitating interactions among colleagues within the program. One MHL stated, "all of the coaches have great expertise. So, there's a steady stream of valuable information that comes from them," also acknowledging their coach's "terrific system skills." Other MHLs spoke of turning to coaches when there are "questions related to challenges [with the work]" or when there is "something more in depth [to discuss]." The director of the CYMH initiative, who also served as a coach in the first year and continued to be informally available to all MHLs, was highlighted by many MHLs as being central to the program. Her prestige within the group was explained by one MHL as being related to the fact that "she was so instrumental in its [CYMH] development and she's the public face of it in so many ways. … [She] is brilliant. She's the whole package. She's smart, she knows about systems, she's articulate, she's visionary, she's evidence-based. She's got it; she's the whole package." There was a lot of respect among MHLs for the experience and expertise that the coaches bring to the program.

Coaches often spoke of their perceived responsibility to connect MHLs with each other as part of their duties in addressing individual school district needs. For example, one coach said, "They [MHLs] often ask me for examples of something and I will refer them to one of the other cohorts. … Just because I have a little bit of knowledge about what each of them is doing and they may not have the same knowledge." Other coaches echoed this point, speaking about the importance of building a trusting relationship between a coach and MHL, saying that "once you have that, the people you are working with will reach out to you a lot more, even just for conversations."

Another coach suggested that personality differences may play a prohibitive role in facilitating relationships, which could help explain why some members remain

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on the periphery of the network. She suggested that "style differences may play a role in why some people connect more with their coaches than others." Coaches viewed their role not only to be about connecting with MHLs one-on-one, but also to facilitate connections between MHLs as a group, so that they have access to the knowledge and experiences of their peers.

In keeping with the program's design, coaches are making connections with their school district colleagues beyond the formal CYMH meetings. The MHLs interviewed for the study identified coaches as central figures in their personal professional networks relating to this work. From this point of view, the program is achieving its goal. However, the social network analyses indicate that about half of MHLs from each cohort sit on the periphery of these informal networks. This is an important insight for the CYMH leadership team, given that the current social structure greatly limits MHLs' ability to access the knowledge and expertise of their coaches and colleagues once they have returned to their daily work in their local contexts.

Coaches play a key role in connecting research, policy, and practice

Both coaches and MHLs viewed the inclusion of coaching as a strategy for developing research-informed SMH policies as a central piece of the CYMH program. The coaches spoke about two levels of responsibility within the program, speaking of their work in relation to two groups: among themselves as program coaches, and their individual coaching work with district MHLs.

Coaches most frequently referred to their responsibility to each other within the context of their collaborative preparatory work (i.e., preparing the resources and materials used during the formal professional learning and development sessions). One coach described the CYMH program team as "a collective multidisciplinary group … who have a responsibility [to each other] to share our perspectives and share our lenses and shape how we do the work because we come from different backgrounds." The coaches acknowledged the varied professional experiences and knowledge that each individual brought to the program. They also identified a collective responsibility to the entire program, using their unique experiences in the fields of educational administration, psychology, and social work to develop an evidence-based and research-informed CYMH program, while also building district-level capacity for research-informed SMH policy.

Most coaches articulated the belief of incorporating evidence-based knowledge into the routines of school districts, fuelling their sense of responsibility to the MHLs. The time for individual coaching (outside formal meetings) was a time when "[coaches] are reinforcing those messages that are coming out of the mental health leadership meetings," said one coach. Another coach discussed the importance of building coherence across the group, "As coaches, if we ask what structures you have put into place so that your system is very clear about the language you are using, the purpose of your work, and the function of their group, we should all be getting the same answers."

There was, however, at least one coach who felt that building capacity for research use in school district policymaking was not explicitly part of her role: "We [the program] have presented a rubric in terms of criteria for what constitutes good

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evidence-based usage. We've given them some examples of programs that are evidence-informed, if not evidence-based. But I don't explicitly do that [build capacity] … in my role as a coach." There is some variation in the degree to which coaches took responsibility for explicit capacity building for using research knowledge.

Two-thirds of the MHLs interviewed (*n* = 4) acknowledged the important role that coaches played in connecting research and practice. One MHL clearly stated, "I would say in terms of finding and using research knowledge, it would be predominantly my coaches that sort of steer that, more so than my mental health [colleagues]." She believed this to be the case because "They're leaders in the field of school mental health. …They're cutting edge … they're presenting at international conferences." Other MHLs spoke about the importance of having coaches to turn to when they are "questioning evidence or [having trouble] believing the applicability of something." Generally, MHLs shared similar perceptions as the coaches: coaches are an important resource available to help facilitate incorporating research knowledge in their individual district SMH policies.

Coaches also constrain knowledge mobilization activities

Both groups also identified coaches as a constraint on KMb activities. Some coaches expressed that their personal approach to coaching and the evolution of the CYMH coaching model within the broader context may have been impeding their success in building capacity for research use. For example, one coach queried whether or not she was engaging in enough activity with her assigned group of MHLs: "I guess one question I have is, why aren't they calling more often? And is that because I haven't reached out enough, not reminded them enough, not sending them my phone number and email every week?" This coach reflected at length about whether or not her personal style in terms of approaching her coaching work was a mitigating factor in connecting MHLs with the knowledge and skills necessary to develop research-informed SMH policy. She was aware of the infrequency of interaction with her group of MHLs, indicating that even her own expectations were not met in terms of frequency of interaction.

The program director acknowledged the challenges with the coaching strategy: "The coaching model is a tricky one because we are just building it," she said. Recognizing the successes and challenges during the pilot years of the program (the period covered during this study), she attributed the shift toward a one-on-one model from the earlier group approach as being a difficult but important evolution: "It's an evolving thing … [the coaching model has] lacked a standardization across the coaches, and the Mental Health Leaders have been quite direct with me about what their needs are, when they are being met, and when they are not." The evolving nature of the coaches' role within the program helps understand why—when they were generally central figures across the networks—coaches' involvement in the informal network varied greatly when considered individually.

The MHLs also described how interactions with coaches functioned as a KMb constraint. Although they are formally assigned to specific coaches, one MHL stated, "There are some coaches that they [MHLs] would talk about [issues] in front of anyway, but there are some that you don't know why they are coaches." Not all coaches are perceived

as equal within this group; some coaches' skills, knowledge, and experience are considered more valuable than others—a finding reflected in the social network structure.

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There exists a common group of individuals who are far less connected than others across the CYMH networks. One MHL suggested that "there is some work to be done around what is the role of the coach, and can we use different coaches for different reasons"—an insight that may help explain why the informal patterns of interaction do not follow the formal assignment of coaches to MHLs, as well as why some people (coaches and MHLs) are more frequently sought out than others. The value and underlying goal of helping school districts design and implement research-informed SMH policy and programming was uncontested; rather, the coaching model (in terms of how coaching groups were organized) that was brought into question and identified was, in some ways, a barrier to knowledge exchange.

Discussion

The CYMH program functioned as an intermediary organization, brokering research-based knowledge between mental health research and school district contexts. The program design was specific, focused, and informed by research. In other studies of intermediary organization's work with school districts (e.g., Coburn, 2010; Honig, 2004), brokers often begin their work within an established workplace with its own cultural norms and practices (i.e., pre-existing social capital), which may affect research use in district decision-making and policymaking. In this context, with a few exceptions, participants were new to each other; there was very little established social capital within the group at the onset of their work together. This added a layer of complexity to building a professional community that would engage complicated problems of practice and complex knowledge exchange—situations where high levels of trust and credibility are critical to knowledge exchange processes (Daly, 2010). In addition to the work necessary to build capacity for evidence-based and research-informed practice, CYMH's leadership also had to attend to social capital development, rendering the task even more difficult.

The CYMH program was unique in its interdisciplinary design, where experts from the fields of child and youth mental health and educational administration were brought together rather than remaining in the typically siloed landscape that often characterizes social services. With coaches and MHLs coming to the program with their own experience and expertise from across diverse fields, the interdisciplinary nature of CYMH invited a host of challenges—adapting what works well in the health sector to an education context. The lack of common language and different approaches to problem-solving potentially impedes capacity development in some school districts where the prevailing culture precludes research evidence use. However, there is great opportunity within this KMb model to bridge the gap between research and practice by integrating knowledge and expertise from across domains, functioning in tandem rather than separately, as is often the case.

While the CYMH program envisioned a specific coaching model, the patterns of interaction revealed that the reality of the program did not match the design. Individual MHLs were assigned to specific coaches who theoretically served as their point of contact outside of formal meetings. Had informal activity patterns adhered to this design,

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the network maps would have shown groups of MHLs clustering around their individual coaches, but that was not so. Collectively, the coaches were central figures in the research knowledge and advice networks, yet there was considerable variability in their levels of informal activity: two coaches were consistently sought out more often than other program coaches across multiple relational dimensions. Hence, the patterns of informal interaction within this professional community were not divided up into individual coaching groups, as one might expect given the original design.

The nuanced insights provided in the interviews—making clear the value of conducting a mixed-methods study in social network research—helps understand why the patterns of informal interaction differed from the program design. A key function of the program is to help build MHLs' capacity to use research in district policymaking. Thus, the people perceived to be the most knowledgeable were those coaches who had extensive experience in child and youth mental health within schools and school districts; all coaches were not considered equal. A combination of field-based knowledge and experience in both child and youth mental health and educational administration characterized some coaches' expertise as more credible or authoritative than coaches who possessed knowledge and expertise in only one domain. This accounted for the more central positions of some coaches within the networks. Those with the most relevant knowledge and expertise were seen as the key facilitators of connecting research and practice.

While CYMH coaches were key figures in helping MHLs make sense of related research and offering advice, MHLs implied that it was the formal meetings and evidence-based tools of the program more broadly that connected research and practice. When MHLs discussed connecting with research knowledge, they most often referenced the program's materials and resources, which were provided to them during the formal meetings, as the predominant source of resource knowledge. In effect, it is the artefacts created and distributed by the coaching team that are mobilizing research knowledge most effectively, offering further evidence and findings that products and events are important KMb mechanisms (Cooper & Levin, 2010; Nutley et al., 2007). The informal interactions within this network provide more sense-making opportunities in relation to these KMb tools, rather than directly connecting research and practice.

Conclusion

The CYMH participants are not connecting often with each other outside of formal events, potentially compromising the long-term sustainability of the program beyond its formal mandate. However, given the study's focus on the two pilot years of the program, lower levels of activity might be expected as the program gains traction while it takes time to build social capital within a community. This study emphasizes how social structures within research brokering networks such as CYMH affect how they carry out their work in relation to KMb activities. In this case, the primary role of the informal network is to provide a context within which members make sense of the research-informed tools and materials designed to help them develop their own research-informed SMH policies. Sense-making processes are highly individual and personal, often requiring strong, trusting relationships, which take time to develop.

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Policymakers and program designers would do well to pay attention to these social spaces and incorporate social capital strategies—that is, deliberate and focused approaches to building the types of relationships necessary to meet intended goals—into their program design and implementation planning. Policymakers and decisionmakers at both government and district levels need to understand that it is the *quantity and quality of interactions* within these networks that both facilitate and constrain desired outcomes. These findings reiterate the necessity of providing the collaborative spaces in which face-to-face interactions develop the foundational levels of social capital (e.g., a culture of trust and reciprocity) required to engage in joint work, regardless of its nature. A social network perspective can generate important formative feedback that identifies weak areas and/or under-utilized resources within a network, enabling governments and system leaders to reallocate resources in order to strengthen network activity and the conditions that support network growth. Developing and sustaining research brokering networks such as CYMH is a resource-intensive activity requiring deliberate action to ensure sustainability: a social network perspective can positively inform this work.

From a practice point of view, a social network perspective can help people become aware of their social environments, providing a critical feedback loop. In the case of CYMH, the program's leadership can use these insights to understand the ways in which their school district participants are interacting with their coaches and CYMH colleagues outside the formal boundaries of the program. For example, the leadership team will need to decide whether or not these low levels of informal interaction are, in fact, problematic. If so, they can make decisions that will encourage greater connectivity outside of professional learning events. If not, they can focus their energy on developing the formal elements of the program. Similar decisions can be made about whether or not the existing core-periphery structures and other network characteristics (see Rodway, 2015b) are troublesome.

When designing and implementing research brokering networks, it is essential to build awareness of and access to the expertise within the network that will enable members to make use of research-based knowledge in their daily professional practice. Paying attention to who is included in the network and establishing structures and processes that enable the group's ability to connect is crucial. Networks cannot be taken for granted—they do not always function in positive ways. Some patterns of interaction can, in fact, inhibit the realization of intended goals, or at the very least pose significant barriers that make achieving the desired ends difficult. Social spaces are complex and messy, but they have real and sometimes serious implications for the design and implementation of educational change strategies, such as research brokering networks. There is a growing body of literature on both social capital and social network theory that could fruitfully guide these processes as well as illuminate the invisible work of networks as important tools for knowledge mobilization.

Note

1. In this study, "research-based knowledge includes research findings, evidence, and also theoretical and empirical insights" (Davies & Nutley, 2008, p. 2).

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