Using concept mapping to identify conditions that foster knowledge translation from the perspective of school practitioners

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Abstract

This article examines the efficacy of using concept mapping to identify the key dimensions that influence the use of research-based information by school practitioners, including teachers, educational counsellors, and school administrators. This mapping exercise was the first step in developing a competency framework for translation of research-based knowledge in education. Its aim was to provoke collective reflection of key stakeholders in the education sector who are already playing a role in knowledge transfer in their settings, to find out what should be done to make the scientific knowledge more useful to professional practices in schools. Altogether, the exercise identified eight domains that, according to respondents, influence the use of research in schools. These results were subsequently validated by three subgroups of participants and compared against the scientific literature on the topic to lay the foundation for identifying competencies that should be included in the framework. The map produced in the exercise described in this article presents a first picture of how things should be, in education, in order for teachers, educational counsellors, and school administrators to be informed by research-based information. The concept mapping methodology used in this study combined qualitative and quantitative approaches and was based on the active participation of key stakeholders. In the context of a project to develop a competency framework to foster knowledge translation, we consider this method to be appropriate and compares favourably with other group techniques.

Key words: concept mapping; research utilization; knowledge translation; school practitioners.

Introduction

Studies on the subject have shown that using research-based information (RBI) can help school practitioners to meet the challenges confronting them daily and thereby improve children’s academic success (Dagenais et al. 2012; Lysenko et al. 2014). Because of this, there has been a proliferation of RBI transfer initiatives since the early 1990s, with the result that today there are several organizations whose primary mission relates to RBI transfer (e.g. Cochrane Collaboration, Centre for Reviews and Dissemination, Evidence for Policy and Practice Information and Co-ordinating Centre). Still, several studies have demonstrated low usage of RBI by school practitioners and decision makers (OECD, 2000, 2007, 2010; Abrami V
Background

The purpose of the competency framework project is to develop knowledge translation skills in three sets of actors in the school setting: teachers, educational counsellors, and school administrators in both primary and secondary schools. A competency framework is a descriptive and normative document that sets out the competencies expected of an individual working in a given environment. This document should be understood as a collective framework that establishes the various actors roles and what is expected of them in those roles (Marcq 2008; Postaux and Bouillard and Romainville 2010). However, several authors have pointed out that there is limited scientific knowledge about the roles of different actors in the transfer process, that is, how they obtain knowledge, appropriate it, share it among themselves, and use it (Honig and Coburn 2008; Cooper et al. 2009).

For a framework to express a compromise among the various parties, the process by which it is developed needs to take the form of a dialogue among those parties (Oiry and Sulzer 2002). To accomplish this, the members of the scientific committee for this project, consisting of the authors of the present article, proposed to begin the process by collaborating with 28 actors in the education sector who are already playing a role in knowledge transfer in their settings, to find out what should be done to make the scientific knowledge more useful to professional practices in schools. These 28 persons formed a 'project committee’ tasked with co-developing the competency framework and participated in the CM operation described below.

Methodology

To gather the views of school administrators, educational counselors, and teachers regarding RBI use, we conducted a CM exercise in July 2013. The CM technique is specially designed to help identify the components, dimensions, and particular features of a given situation and how these are interrelated (Trochim 1989; Trochim and Cabrera 2005; Dagenais et al. 2009a,b). This technique is compatible with the co-development approach adopted in this study. Essentially, it is based on involving all stakeholders in all phases of the exercise, with the aim of achieving participant buy-in for both the process and its results.

Participants

The exercise involved the 28 members of the project committee, consisting of representatives of the Ministry of Education, Leisure and Sports, of four school boards involved in developing the framework, of representatives from two unions of school personnel, and of three professional associations. From this group of 28 participants, a subsample was subsequently selected to carry out the second step of the procedure, as described in the following section.

Our recruitment strategy was not intended to produce a representative sample of all school practitioners, but rather to form a group that could elicit all the different situations encountered in schools (Glaser and Backer 1975; Patton 1990, 2012; Strauss and Corbin 1994). Our aim was to ensure that the information generated by these persons would thoroughly cover all aspects related to RBI transfer by the targeted teachers, educational counsellors, and school administrators.

Procedure

The CM technique we used involved four steps: (1) a plenary brainstorming session, (2) classifying and scoring each of the statements, (3) data entry and analysis, and (4) interpreting the results.

1. Brainstorming session

Step 1 was based on formulating an incomplete sentence that participants were asked to complete in the first group session. This sentence was designed, on one hand, to be sufficiently general that it would uncover all aspects of participants’ conceptual universe related to knowledge translation and, on the other, to be specific enough that participants would limit themselves to this type of activity (Trochim 1989). The participants had about 2 hours to generate a list of verbal statements to complete the following sentence:

‘Professional practices in schools would be better informed by research if …’

Throughout the activity, the facilitator reminded participants that all of the statements, when taken together, needed to cover all aspects related to knowledge translation and that the usual rules of brainstorming applied: the facilitator encouraged participation, made sure everyone had a chance to speak, and explained that there was to be no discussion of the statements' value or relevance,
although participants were allowed to ask questions of clarification (Trochim, Cook and Setze 1994). During the session, a research assistant entered into a computer the list of statements that were projected onto the wall. Altogether, 94 statements were produced in this first session.

2. Classifying and scoring the statements
The material produced in Step 1 was then submitted to a subgroup of 12 participants who were asked to work individually on two other tasks. First, on a scale of 1–5, where 5 is ‘very important’, participants gave each statement a score for importance. Then they drew associations among the statements and sorted them into groups that each, in their view, represented a dimension that influenced research use. They were allowed to create as many groups as they wished, but no statement could be in more than one group.

3. Data entry and analysis
Construction of the map was based on a series of multivariate statistical analyses. The initial classifications produced by the participants served as input to the analyses. First, a hierarchical cluster analysis1 grouped into clusters the elements that represented similar concepts according to the participants (Borgen and Barnett 1987). This procedure could produce any number of clusters, ranging from 94 clusters containing one statement each, to just one cluster that would contain them all. The analysis began by considering the individual statements as 94 clusters, and in each subsequent step, determinations were made to assess the extent to which each statement was sufficiently similar to another or a group of others to be combined with them. Then, the data were put through a second statistical analysis called multidimensional scaling. This analysis positioned each cluster in relation to the others in a way that represented the correlational distances among them (Kruskal and Wish 1978). The most strongly associated clusters were thus positioned near each other, and the least strongly associated were at both ends of the map. The final step of the analysis consisted of a simple mathematical operation of calculating the mean of the scores attributed by the participants to each of the items in each cluster during the scoring done in the first group session. This mean determined the relative importance of the clusters, as viewed by the participants. This third step was carried out by the researchers using a module specially designed for this study by Provalis Research (http://provalisresearch.com/).

4. Interpreting the results
The scientific committee then met to reach a consensus on the number of clusters to retain and on appropriate names for each of them. At this session, the team was presented with a map containing 11 clusters, defined by the software by default, along with a list of the statements contained in each cluster. Each committee member was asked to examine the content of the clusters and then decide, by consensus, whether to combine or subdivide some of them, while trying to identify one key idea in each. Besides a visual examination of the cluster contents and their relative importance, a statistical index provided information to help with interpretation. This was a specificity score, which is generally greater than 1, and which indicates the strength of an item’s association with a cluster. The higher the number, the more this item will be representative of the overall idea emanating from the cluster. Content analysis of the clusters continued until a final map emerged that everyone agreed was representative of the key dimensions that could influence RBI use. After this, conceptual labels were created by mutual agreement that conveyed the overall sense of each cluster. At the end of the exercise, nine statements were moved from one cluster to another because of better fit with those other clusters’ conceptual labels.

Results
The final map presented eight clusters (Fig. 1), looking like islands, whose numbers of strata (thickness) and their size corresponded to the importance attributed to the statements making them up. The islands whose statements had been assigned the highest mean values by participants were made up of three strata (Clusters 4, 7, and 8). Those whose mean values were the lowest had only one stratum (Clusters 1 and 2). The clusters’ surface area did not represent the number of statements making them up. As mentioned, the clusters are positioned on the map according to their relations (strength of association) with all of the others; as such, any particular cluster’s position on the map—top, bottom, right, or left—is of no particular significance. The list of the statements contained in each cluster is presented in Table 1. This list also includes the mean importance score and the specificity score attributed to each item and for each cluster. The statements that were moved in Step 4 (21, 29, 34, 37, 39, 72, 75, 86, 89) are presented in bold in the table.

Each of the eight clusters or conceptual categories corresponds to a dimension that could foster knowledge transfer in education. The titles given to these categories are: Cluster 1:… if teachers’ needs and openness to research were taken into account; Cluster 2:… if in the school environment, we developed and valued a practice-focused research culture; Cluster 3:… if the school would put in place mechanisms for integrating research; Cluster 4:… if the links between universities and practice settings were strengthened; Cluster 5:… if the different institutional levels would prioritize RBI use; Cluster 6:… if the resources and conditions (expertise, time, financial incentives) required to integrate research were provided; Cluster 7:… if teachers could be better supported in integrating research into their practice; and Cluster 8:… if knowledge could be made more accessible to the education sector.

Validating the results with homogeneous subgroups
The map produced served as a starting point for a validation activity among homogeneous subgroups of participants who did not participate in the original brainstorming. Three group interviews were conducted in September and October 2013: a group of educational counsellors (n = 8), a group of school administrators (n = 7) and a group of teachers (n = 10). In these activities, participants were presented with the steps in the map production process and a table containing the cluster titles and a few examples of the statements in each cluster. After this presentation, they were asked to consider two questions. First, they were asked to say, for each cluster, whether they considered it very important, moderately important, or less important. After this, they were asked: If this map had been produced by a group made up only of [members of your professional category], would it be different, and if so, in what ways?

The participants in each of these three group sessions did not point out any element that did not correspond to their reality. They considered only a few clusters to be a bit more or less important than indicated on the map given to them, but in all cases these differences were, on the whole, quite minor.
Professional practices in schools would be better informed by research if …:

1. If teachers’ needs and openness to research were taken into account.
2. If, in the school environment, we developed a practice-focused research culture.
3. If the school would put in place mechanisms for integrating research.
4. If the links between universities and practice settings were strengthened.
5. If the different institutional levels would prioritize RBI use.
6. If the resources and conditions (expertise, time, financial incentives) required to integrate research were provided.
7. If teachers could be better supported in integrating research into their practice.
8. If knowledge could be made more accessible to the education sector.

Figure 1. Final map.

Discussion

The results of this CM exercise are based entirely on the responses and statements of the 28 participants and represent their conception of the conditions that foster KT in education. Without stakeholder validation, it would have been difficult to assert that the results obtained from this group of participants could be generalized to all school administrators, counsellors, and teachers in the province of Quebec. This is why, to test the ecological validity of our conclusions, we submitted the final map to three subgroups of practitioners from different regions of the province. Based on observations drawn from these group interviews, we can confirm that: (1) the map presented, according to the participants, the key conditions required for greater use of research in education; (2) the participants saw that the updated conceptual categories made sense; and (3) the map revealed a shared way of seeing things among the actors, despite minor differences associated with the different positions they occupied. According to the respondents, the map also highlighted the responsibilities of each category of actors (administrators, counsellors, teachers) in terms of their roles and tasks. It also appeared to be consistent with each actor’s own organizational context.

In addition, the first author of this article has been involved in the development of a Questionnaire about the Use of Research-Based Information to assess factors that affect the extent of research use by educational practitioners. That questionnaire validation, based on 2,734 respondents from secondary schools (Dagenais et al., 2008; Dagenais et al. 2012; Lysenko et al. 2014) showed that four factors, including practitioners’ opinions about RBI, their attitudes toward awareness activities, expertise, and organizational factors, explain research use. The results of the CM is consistent with these factors. In the following paragraphs, we have noted the clusters that refer to each of them.

1. The characteristics of users refer to the actors’ perceptions regarding the accessibility, accuracy, and utility of the knowledge (Ratcliffe et al. 2005). This refers to Cluster 8 that includes items referring to the accessibility of knowledge (item # 10) and the importance of the ‘just-in-time’ availability of the results. Users’ perceptions regarding the congruence between their needs and the knowledge are also a condition that belongs in this category (Dagenais 2010). This refers to Cluster 1 that includes the feeling of being involved in the research (# 11), teachers needs (# 55), and the utility of research to solve problems (# 3).

2. The characteristics of the knowledge can sometimes positively influence its use when potential users are involved in the co-production of the knowledge (Huberman 1990; Estabrooks et al. 2003). These characteristics are evoked by all items in Cluster 4. The presentation of the knowledge in an appropriate format and it applicability also fall within this category. In Cluster 8, items # 5, 64, 10, especially refer to that factor (Van der Meer 1999; Dagenais et al. 2013).
Table 1. Statements contained in each cluster including mean importance and specificity scores

| No. | Statements                                                                 | Priority | Specificity |
|-----|-----------------------------------------------------------------------------|----------|-------------|
| 1   | if teachers’ needs and openness to research were taken into account          |          |             |
| 2   | if we talked more about knowledge acquisition than transfer                   | 2.75     | 4.40        |
| 3   | if more value were given to research in education                            | 4.58     | 3.73        |
| 4   | if we believed there was a connection to be made between research and practice | 3.83     | 3.58        |
| 5   | if the practice change expected in the classroom were reinforced by interventions in other areas (classroom, school, family, community) | 2.67     | 1.77        |
| 6   | if school teams developed decision-making processes that were appropriate for their settings before looking to RBI for solutions | 2.58     | 4.23        |
| 7   | if schools had a process for transferring new RBI among practitioners         | 3.75     | 2.94        |
| 8   | if schools had a culture that encouraged professional questioning            | 3.83     | 2.89        |
| 9   | if our schools were to become learning communities                           | 4.25     | 2.67        |
| 10  | if RBI supported the development of a school’s educational vision            | 4.50     | 3.28        |
| 11  | if all school practitioners were in a continuing education culture           | 4.42     | 2.23        |
| 12  | if schools’ training plans were based on RBI                                 | 4.00     | 2.79        |
| 13  | if administrators really knew how to guide change                            | 3.58     | 2.94        |
| 14  | if school administrations could be supported in the process                  | 3.58     | 2.17        |
| 15  | if different practices were encouraged in a single setting                   | 3.23     | 1.89        |
| 16  | if school practitioners were partners and involved in knowledge construction and dissemination | 4.00     | 2.51        |
| 17  | if collegiality were at the heart of the RBI transfer process in terms of respecting each other’s roles | 3.75     | 2.15        |
| 18  | if the links between universities and practice settings were strengthened      | 4.17     | 4.35        |

(continued)
Table 1. Continued

| No. | Statements                                                                                                                                  | Priority | Specificity |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| 46  | … if researchers were partners on the ground in training school practitioners                                                            | 4.42     | 6.63        |
| 90  | … if we had university-affiliated schools                                                                                                | 3.92     | 3.69        |
| 92  | … if more attention were paid to RBI in teacher training programs                                                                         | 4.25     | 3.79        |
|     | Mean                                                                                                                                     | 4.19     |             |

5… if the different institutional levels would prioritize RBI use

| No. | Statements                                                                                                                                  | Priority | Specificity |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| 34  | … if the school administrations made it a priority in their actions                                                                    | 4.33     | 3.17        |
| 29  | … if there were a union movement to support it                                                                                           | 3.50     | 4.57        |
| 22  | … if the education sector adopted a continuing education policy based on RBI                                                            | 4.17     | 4.02        |
| 52  | … if school board directors made knowledge translation a priority                                                                        | 4.17     | 5.69        |
| 57  | … if the education plan and the academic achievement plan made reference to research                                                   | 4.00     | 4.09        |
| 70  | … if academic achievement plans only contained RBI-based methods for changing practices                                               | 3.67     | 3.46        |
| 60  | … if school boards’ strategic plans referred to RBI                                                                                      | 3.75     | 8.24        |
| 62  | … if the arrangements set out in management contracts and in academic achievement plans were focused on preferred practices          | 3.58     | 4.50        |
|     | … if politicians attributed more value to research in education                                                                       | 4.33     | 4.98        |
| 50  | … if the Ministry of Education (MELS) would develop an action plan for RBI                                                              | 3.67     | 7.64        |
| 53  | … if the school boards’ education services were assured of teacher training being based on RBI                                         | 4.42     | 3.03        |
| 87  | … if school boards entered into long-term partnerships with researchers to establish relationships of trust                               | 3.92     | 7.05        |
| 42  | … if the mandates of continuing education committees were broadened to include research as points of reference                          | 3.33     | 3.71        |
|     | Mean                                                                                                                                     | 3.59     | (3.91)      |

6… if the resources and conditions (expertise, time, financial incentives) required to integrate research were provided

| No. | Statements                                                                                                                                  | Priority | Specificity |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| 39  | … if school administrators were given time to carry out their roles as education leaders                                                | 3.67     | 2.99        |
| 21  | … if the ratio between intended outcomes and energy invested were more positive                                                          | 3.08     | 2.55        |
| 2   | … if there were times set aside for working together to acquire new knowledge                                                             | 4.00     | 4.21        |
| 66  | … if practitioners were freed up for a certain amount of time to work together                                                            | 4.08     | 4.31        |
| 58  | … if conditions were in place to foster the acquisition of RBI, collaboration, and discussion in schools                                 | 4.25     | 3.45        |
| 81  | … if we were given enough time instead of having to look for immediate results                                                            | 3.75     | 3.36        |
| 68  | … if the time set aside for teaching was actually used for that purpose                                                                    | 4.00     | 2.87        |
| 94  | … if incentives (such as time) were offered to acquire RBI                                                                               | 3.50     | 2.75        |
| 43  | … if there were enough educational counselling resources                                                                                  | 3.17     | 4.64        |
| 67  | … if there were, in each school board, designated persons and time allotted to monitor and disseminate research results                  | 3.67     | 3.38        |
| 47  | … if mechanisms were in place to monitor the application of RBI (observable signs of successful transfer)                                | 4.00     | 2.72        |
| 35  | … if budgeting rules highlighted these practices                                                                                          | 3.25     | 6.05        |
| 59  | … if funding were available in the budgets to put in place some facilitation factors                                                     | 3.92     | 6.98        |
| 51  | … if the Ministry of Education (MELS) provided additional budget to hire educational counsellors to focus on RBI transfer                   | 3.33     | 6.15        |
|     | Mean                                                                                                                                     | 3.69     | (3.74)      |

7… if teachers could be better supported in integrating research into their practice

| No. | Statements                                                                                                                                  | Priority | Specificity |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| 6   | … if teachers were given the support required to make the new practices workable in class                                               | 4.42     | 5.64        |
| 54  | … if support were provided for knowledge application in the classroom                                                                    | 4.42     | 6.05        |
| 8   | … if there were people assigned to accompany and support school practitioners                                                             | 4.50     | 6.01        |
| 36  | … if educational counsellors were supported in providing support                                                                          | 3.58     | 8.32        |
| 82  | … if training programs included support in the classroom or to school teams                                                               | 4.00     | 6.14        |
| 65  | … if trainers based their teachings on RBI                                                                                               | 4.17     | 5.61        |
| 69  | … if trainers identified and disseminated the research on which they based themselves                                                    | 3.83     | 5.29        |
| 44  | … if educational counsellors were trained in using research                                                                               | 3.92     | 6.63        |
| 84  | … if there were mentors who had experienced best practices and who could share their knowledge with their peers                            | 3.75     | 3.47        |
|     | Mean                                                                                                                                     | 4.07     |             |

8… if knowledge could be made more accessible to the education sector

| No. | Statements                                                                                                                                  | Priority | Specificity |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| 5   | … if research results were presented in language that was accessible                                                                       | 4.50     | 12.14       |
| 64  | … if the dissemination of research results were planned from the outset so that knowledge could be tailored to the intended audience       | 4.08     | 13.25       |

(continued)
3. The characteristics of the knowledge translation and support strategies (awareness activities) correspond to the efforts made to promote knowledge use. These strategies must be based on a relationship of trust with users and on regular contacts between knowledge users and disseminators (Cluster 4, i.e. items # 27 and 90; and all the items from Clusters 3 and 7) (Huberman and Gathert-Thurler 1991; Landry, Amara and Lamari 2001).

4. The organizational context category encompasses all the elements that can affect professional activities, including the organizational culture, such as established habits, traditions, and values (Walter et al. 2004; Ellen et al. 2011), the leadership of key actors (Backer 1991; Nutley, Walter, and Davies 2003; Walter et al. 2004), and the allocation of needed resources (Dagenais et al. 2012). The characteristics of the school environment are covered by items from Cluster 2 and those from the different institutional levels in Cluster 5. Cluster 6 relates to the needed resources and conditions required to integrate research in daily practices.

The goal of this CM was not to provide an exhaustive list of the competencies that school practitioners would need to develop to promote research use. However, it does provide a very useful conceptual framework for identifying these competencies. This first phase of the study to develop the framework brings us face-to-face with the complexity of the links among the factors facilitating research use in education.

The results from this collective exercise presented eight categories of conditions that may foster research use by school practitioners and that are consistent with the scientific literature on this subject. In the end, six of these eight conditions were taken into account in developing the competency framework, as questions relating to prioritizing research use at different organizational levels (Cluster 5) and allocating the required resources (Cluster 6) do not fall within the purview of school practitioners, but rather, that of the governing authorities. Among the competency domains identified in the framework, three have to do with school administrators. The first relates to developing an organizational culture of knowledge integration in the school (Cluster 2), the second involves identifying needs for new knowledge that could improve practices (Cluster 1), and the third is aimed at developing a culture of collaboration and networking among researchers and practitioners (Cluster 4). Two domains relate specifically to educational counsellors. The first has to do with identifying research results and putting them into a format designed to make them more accessible (Cluster 8); the other involves supporting teachers in reflecting on, interpreting, and integrating knowledge into practice (Clusters 3 and 7).

Lastly, only one competency domain emerging from the CM exercise had to do with teachers; it was related to developing a professional culture of integrating and sharing any RBI considered to be of high priority for improving teaching (Cluster 2).

The CM methodology used in this study combined qualitative and quantitative approaches and was based on the active participation of key stakeholders. In the context of a project to develop a competency framework, we consider this method to be appropriate and compares favourably with other group techniques, such as focus groups, nominal groups, and the Delphi technique. In fact, using the CM method to delineate, from the perspective of key stakeholders, the conditions for research use in education offers several advantages: (1) it provides images or configurations that represent simultaneously the key dimensions involved and their relative importance, (2) it calls for the involvement of participants who are present throughout the process of producing and interpreting results, (3) it uses the participants’ own vocabulary, (4) it ensures each participant’s views carry equivalent weight in the statistical calculations, and (5) it provides rapid feedback to the participants, who thereby find themselves actively involved in the process of interpreting the data (Dagenais et al., 2009b; Dagenais 2010). As such, incorporating the CM method into a competency framework development process respects four best practices in this field, as established by Campion et al. (2011). In fact, the CM method allows the views of different participants to be integrated using valid statistical methods, providing a solid methodological base for the framework development process. This method also makes it possible to assess the relative importance of each statement and then of each cluster included in the map produced, thereby providing indicators on the relative importance of each of these clusters and that will be considered in the framework development. The method also allows the participants’ own vocabulary to be used in the framework, as no qualitative alteration of the statements is required in the analysis process. Lastly, the resulting map provides a visual representation of the information, which helps to facilitate the intended users’ buy-in and integration of the potential content of the framework.

### Table 1. Continued

| No. | Statements | Priority | Specificity |
|-----|------------|----------|-------------|
| 10  | . . . if research results were presented in a more accessible format | 4.17 | 5.53 |
| 79  | . . . if RBI could be available on a ‘just-in-time’ basis to inform action | 3.67 | 8.30 |
| 7   | . . . if it were easier to access research results | 4.25 | 12.68 |
| 80  | . . . if we could identify appropriately and rapidly the most relevant studies to meet our needs | 4.42 | 10.34 |
| 77  | . . . if we used multimedia platforms (e.g. video clips) to have detailed accounts of teachers’ experiences | 2.92 | 8.07 |
| 28  | . . . if knowledge about academic achievement could be more easily accessed through a web portal with information on all studies carried out in Quebec | 3.17 | 8.95 |
| 9   | . . . if access mechanisms were available | 3.33 | 6.41 |
| 61  | . . . if practitioners could have an overall picture of what research can provide them in their field of practice | 3.92 | 5.98 |
| 41  | . . . if studies were promoted in order to rouse the interest of teachers | 3.92 | 4.12 |
| 23  | . . . if we could appropriately identify the studies that meet our needs | 4.17 | 5.06 |

*Items number in bold are items that were moved after the map went through the interpretation process.*
throughout the entire development process and not just when the final version of the framework is presented.

Conclusion

The CM exercise presented in this article was intended as a first step towards the development of a competency framework for knowledge translation in education. Participants’ involvement in producing the conceptual map engaged them in the framework co-development process. Indeed, the presence of representatives of key stakeholders on the project committee, and the subsequent inclusion of representatives from school administrations, educational counselors, and teachers in the group discussions, allowed their perceptions of their own situations to be taken into account. Sharing the statements that made up each of the clusters provided a deeper understanding of the problematic work situations that hindered knowledge use in the participants’ settings. These results were especially useful for the later phases of developing the competency framework, as one of the objectives of developing a framework in a competency-based approach is to go beyond ‘what is’ and to move towards describing ‘what should be’. The map produced in the exercise described in this article presents a first picture of how things should be, in the context of education in Quebec, in order for professional practices to be informed by RBI.

The development of a competency framework should be based on a rigorous process and include several sources and methods of data collection (Parry 1996; Lucia and Lepsinger 1999; Rodriguez et al. 2002; Campion et al. 2011). The next phases will include, as a first step, a more in-depth survey of the scientific literature on RBI use in order to triangulate and supplement the information obtained through CM. In a second step, various administrative and legal documents will be consulted, such as Quebec’s Education Act, contracts and other documents having to do with continuing education of school practitioners, union agreements, and documents produced by professional associations, among others. This consultation will provide a deeper understanding of school practitioners’ work environments and professional practice contexts. Studying the actual environment of the targeted sector will provide better information on its strengths and weaknesses that can be used in developing the framework (Campion et al. 2011). It will also enable us to take into account, in the process, the resources available in the sector for developing and implementing the framework (Côté 2009). Finally, it will also ensure a good fit between the competency framework developed and the culture and roles already established in the sector (Campion et al. 2011). These phases will make it possible to define clearly the constructs to be included in the framework.

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Note

1. Although most Concept Mapping projects conduct the hierarchical cluster analysis after the MDS, our experience shows that reversing these analyses produces much clearer results. See examples of this in Carter et al., 2009; Peladeau & Dagenais, 2012.

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