



Phase III Report and Continuation Plan Collaboratory for Exemplary in College Mathematics Mathematics Knowledge Exchange Network (MathKEN)

Prepared by The Ontario College Mathematics Association and
Mathematics Knowledge Exchange Network (MathKEN) Planning Team
for the Higher Education Quality Council of Ontario



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Table of Contents

Introduction	2
Achievements – Phase III	3
Community Development.....	4
Team Formation.....	4
Faculty Professional Development.....	4
Collaboration Platform.....	5
Linking Practitioners.....	5
Dissemination of Exemplary Practices	5
Results- Phase III.....	5
Community Formation.....	5
Professional Development	6
Support of Collaboration	6
Linking Practitioners.....	7
Dissemination of Exemplary Practices	7
Recommendations	7
End Notes	9

Introduction

Mathematics is an integral part of the curriculum in the Ontario community college system. Most students are required to take at least one, often several mathematics courses during their college studies. Almost all students enrolled in business and technology programs take several courses in mathematics. Most colleges administer some form of placement/diagnostic math test. At some colleges, the results of the test will help in the proper placement of first semester students into a developmental (remedial) math course or a first semester math course.

For a variety of reasons, many of our students struggle with math. According to the College Mathematics Project report 2009,ⁱ 33 per cent of our students received a D or F or withdrew from the course. College faculty who teach mathematics come from diverse backgrounds. Education levels range from baccalaureates to PhDs with degrees in mathematics, business, engineering, and education to name a few. Many of our faculty members have had little formal training in education.

An opportunity to share, discuss, and learn from one another about teaching and teaching practices can therefore benefit both faculty and students. The Ontario College Mathematics Association Math Knowledge Exchange Network (MathKEN) has created an environment in which Ontario college mathematics educators can share exemplary teaching practices and resources in business math, developmental math, technical math, and statistics.

It is important that teaching methods be shared amongst faculty to help in identifying and disseminating exemplary teaching practices. These teaching methods or practices could be something that has been tried in the classroom and the teacher feels that it is promising and would like feedback from colleagues on whether they have experienced similar results. For example, students coming into the Ontario college system come with the expectation that their studies in college will prepare them with the skills to immediately be successful in their careers. For many of our students, contextual learningⁱⁱ is very important, not only for how they learn, but also for making their studies relevant to their personal and professional lives.

Faculty have learned about ways to teach from their own education and professional training, from their own learning and teaching experiences, attending courses, workshops, and conferences. Many mathematics faculty in Ontario colleges have the opportunity to share teaching practices by attending meetings and conferences sponsored by the Ontario Colleges Mathematics Association (OCMA). Unfortunately, there are also many who are not able to attend face-to-face meetings and so miss the opportunity to share resources. For those who do attend, the long periods between meetings can lead to stagnation and de-energized teaching. Many teach in isolation, without the benefit of input and feedback from others who share the same concerns, challenges, and successes.

To address this need, the Ontario Heads of Math (HOM) and the OCMA with support from the Higher Education Quality Council of Ontario (HEQCO) developed the Collaboratory for Exemplary Teaching in College Mathematics, now known as the Mathematics Knowledge

Exchange Network – MathKEN (with collaboratories in Developmental Math, Technical Math, Business Math, and Statistics).

This report deals with Phase III of the project. Continuing with the work that was done in Phase I and II, Phase III concentrated on strengthening the network that was developed during the 2009-2010 academic year.ⁱⁱⁱ In addition to increasing the number of individuals involved through Faculty Colleagues, the MathKEN site moved from a server at Seneca College to a server hosted by Curriki.org.

Achievements – Phase III

Extending the work of the 2009-2010 Collaboratory for Exemplary Teaching in College Mathematics (Phase II), one of the goals of Phase III was to continue to create the Math Knowledge Exchange Network, a network of mathematics teachers in the Ontario community by incorporating the use of “faculty colleagues.” Our aim was to engage faculty in collaborative initiatives for the enhancement of student learning experiences in Mathematics. The role of the faculty colleague is to promote and encourage the use of the MathKEN site among the faculty at their colleges. Continuing on the success of Phase I and II, we were able to support teaching practitioners and practitioner-researchers in the following activities:

1. Community formation for sharing instructional challenges and teaching issues.
2. Peer-led mentoring and professional development.
3. Support of collaborations for pedagogical analysis; action-research; and resource sharing, development, adaptation and evaluation.
4. Linking practitioners for knowledge exchange and data sharing on exemplary practices.
5. Disseminating exemplary practices, adaptable resources and research findings through technical and social support for collaborative knowledge mobilization.

The following summaries describe the team’s achievements during Phase III of the project.

Community Development

From September to December 2010, the main thrust undertaken by Paul Wraight and Paul Balog was promoting MathKEN among various stakeholders. This was accomplished through presentations about the purpose and scope of the project to faculty at colleges within the system. In November 2010, Tom Carey presented to Ontario Colleges Mathematics Association on similar projects being carried out in the United States. Also in November 2010, Paul Wraight and Paul Balog presented an overview of the project at the American Mathematical Association of Two-Year Colleges^{iv} conference in Boston, Massachusetts.

Team Formation

For Phase III, the following OCMA members agreed to continue to serve on the project Leadership Team:

Statistics Collaboratory

Karen Lawrence (Mohawk College): lead contributor

Taras Gula (George Brown College): community moderator

Math for Technology Collaboratory

Doug Cole (Confederation College): lead contributor

Raymond Guy (Collège Boréal): community moderator

Developmental Mathematics Collaboratory

Paul Wraight (Durham College): lead contributor and community moderator

Math for Business Collaboratory

Paul Balog (George Brown College): lead contributor and community moderator

In addition to the above, several others were recruited to act as Faculty Colleagues.

Faculty Colleagues

Colin Fraser (Niagara College)

Eugene Tay (Loyalist College)

Wendi Morrison (Sheridan College)

Soobia Siddiqui (Fleming College)

Dave Medd (Centennial College)

Faculty Professional Development

Math faculty in the colleges were targeted for three activities to promote interest and involvement. The first was a professional development evening held at George Brown College in Toronto in November 2010. Tom Carey presented from California via a webinar. Carey highlighted some of the events taking place in California and showed the group how the knowledge exchange network could benefit teaching practitioners. He also showed what the new Curikki platform would look like for the MathKEN site. In March of 2011, Paul Balog presented a workshop on how to create a webinar using the Elluminate software and demonstrated how webinars could be used in facilitating knowledge exchange among teaching practitioners. In May 2011, a presentation was conducted at the OCMA 31th annual summer conference held in Orillia, Ontario. Tom Carey, Paul Wraight, and Paul Balog gave updates on Phase III of the project.

Collaboration Platform

The use of the KEN platform at Seneca College to host the MathKEN website was the keystone for the success of the project in Phase I and II. The KEN platform was developed to support the Occupation-Specific Language Training project, applying results from the HEQCO Knowledge Exchange Network for Exemplary Teaching KNEET report and the KNEET Platform Steering Team.

The team felt Phase III of the project would better be served by using the Curikki platform. The new site was up and running by January 2011. The new site has five main sections instead of four sections and is more vibrant. The site itself can be viewed at http://www.curikki.org/xwiki/bin/view/Group_OCMAMathKnowledgeExchangeNetwork/.

Between January and May 2011 invitations to join the MathKEN site were sent out to OCMA members. This site effectively links college math teachers in the province so that they are able to share and discuss promising practices and resources. This site also provides links with other teaching practitioners and researchers outside of Ontario.

Linking Practitioners

By March 2011, the site was ready, in both content and functionality, for widespread distribution. Information about the project was sent to members of the OCMA executive and to OCMA members who would be attending the OCMA summer conference in May 2011. Some of these individuals were also able to attend the workshop in March 2011.

Dissemination of Exemplary Practices

Content and resources for the site continue to expand. Content from the Seneca MathKEN site has been transferred over to the new Curriki site. The site is constantly being updated to meet the needs of the members.

Results- Phase III

Community Formation

During the 2010-2011 academic year, the team was able to connect with over 100 faculty in the Ontario college system representing at least 75 per cent of the colleges. This included full-time, sessional, part-time, and partial load faculty.

Members of the Ontario Colleges Mathematics Council (formerly the Heads of Math) were also updated on the project's progress as was the executive of the OCMA.

Professional Development

Informal feedback from both professional development activities was positive and constructive. Attendees of the November 2010 session liked the concept of being able to share best/promising practices. In particular, they liked the concept of being able to ask a colleague for resources, who in turn could direct them to appropriate material to apply to the classroom. For many of the participants, this was the first time that they had participated in a webinar. Afterward, several indicated that they would like to be able to share information among colleagues using this medium.

The second professional development session was held in March 2011. As a result of the success of the November professional development meeting, it was decided to demonstrate how to create a webinar using *Elluminate™* software. Participants indicated that they found it useful. In particular, feedback indicated that they saw the webinar as an effective means of conveying information to both colleagues and students. Many participants shared a belief that for professional development activities to be beneficial, they must be done on a regularly scheduled basis. *Elluminate™* is one way of accomplishing this.

Support of Collaboration

The MathKEN site was developed with the support of Tom Carey and his California team. Curriki.org provides the platform. One advantage of the Curriki site is in economic accessibility. Curriki is available free of charge whereas the Seneca server, did require payment for tech support. The layout of the site is both simple and functional. Upon entering the MathKEN^v site, users find information about what the knowledge exchange project is, and some of the things that can be done on the site. The lead contributor and facilitators have “rights” to edit and change content on any of the pages.

There were some initial challenges for users trying to join the MathKEN site. There is a two step process in order to become a member. The first part is to become a member of Curriki. On becoming a member of this group, an individual asks to become a member of the OCMA MathKEN site. This was somewhat confusing at first, but a video has been developed to show the process of joining. This video has been posted on YouTube.

The new site has five tabs: Home, Messages, Curriculum, Members, and Documentation.

The “Home” tab of the site gives members an overview of the site. This section also acknowledges HEQCO for their support of the project.

The “Messages” tab links the user to information about upcoming events and tools for sending messages to individuals or to the entire knowledge exchange group. This is a feature that was not possible with the previous platform. The benefit is in allowing a member to notify other member of new discussion topics, practices, and resources.

The third tab of the website “Curriculum” leads to the main content: resources, ideas, and discussions to enhance faculty teaching and learning in Mathematics for Ontario community

colleges. This gives the user an opportunity to review teaching practices that have been tried in the classroom and supported by data and/or other research.

The “Members” tab leads to information about the faculty contributors to the workspace. This is where members can set up their profile, which includes interests and facilitates networking with others with similar interests and concerns.

The “Documentation” tab leads to information about how to use and contribute to the OCMA Knowledge Exchange Network.

Linking Practitioners

In January 2011, the new site was up and running.

Due to the changeover of sites, there was some delay in getting material from the old site to the new site. Difficulty in logging in also caused some delay.

Dissemination of Exemplary Practices

Once the website was functional, members of the team started posting promising practices to each of the four collaboratories. The team continues to post throughout the summer 2011.

Recommendations

Recommendations, based on discussion with the team members and feedback from others, include the following:

1. The Math Knowledge Exchange Network should continue as a professional development initiative for interested faculty within the Ontario college math community (Paul Balog has agreed to take on the role of project manager for the 2011-2012 academic year).
2. College administrators should be approached to help provide minimal funding for release time to continue the project.
3. Continue to facilitate, develop, and support the network of Faculty Colleagues at each of the colleges.
4. Provide weekly updates to members through email and the MathKEN site, highlighting promising practices and resources.
5. A need for more professional activities and their frequency spaced out over the semester. Since person to person meetings are not possible for many OCMA members, other delivery systems should be used such as webinars and conference calls.
6. Promote the site to chairs and deans who are in a position to refer new faculty and part-time faculty to the site in order to get helpful hints on teaching topics.
7. Provide weekly webinars on topics pertaining to teaching practices and sharing resources.

8. Continue to facilitate connections with and between math faculty throughout the province via OCMA and various Heads groups such as Heads of Business and Heads of Technology.
9. Since OCMA members have expressed particular interest in support for scholarly and research activities, include professional development events and a MathKEN collaborator for this purpose. Ideas from the networked improvement communities in the U.S. will be adapted for this purpose, under the tentative label of Math *Learning Improvement Research Network*

End Notes

ⁱ http://collegemathproject.senecac.on.ca/cmp/pdf/FinalReport/2009/CMP_2009_Annual_Report_Final%20-%2009Mar10%20pmh.pdf

ⁱⁱ <http://www.careerladdersproject.org/docs/CTL.pdf>

ⁱⁱⁱ For details on the evolution of activities across the three years of the project, see Carey, T.T., *Review of 2010-2011 pilot studies of the HEQCO Research Program in Knowledge Mobilization for Exemplary Teaching and Learning*, HEQCO Research Report, July 2011.

^{iv} <http://www.amatyc.org/Events/conferences/2010Boston/proceedings.html>

^v http://www.curriki.org/xwiki/bin/view/Group_OCMAMathKnowledgeExchangeNetwork/