



# College Mathematics Project

Oct 28, 2011 Provincial Forum

*Preparing Students for Success in the  
21<sup>st</sup> Century Economy*

# Questions for Deliberation

## 1. *Foundation Programs and Preparatory Mathematics Courses*

Table 4 shows a 30% increase in the numbers of students taking college foundation programs over the past three years and a 20% increase in the numbers taking preparatory mathematics courses (where these are offered). These compare with an 11.3% increase in overall college enrolment over the same period.

### 1.1 How do you interpret these changes?

CMP qualitative research shows that many of the mathematical skills and concepts taught in foundation programs and preparatory courses were first taught in Grades 6 through 9.

### 1.2 What are the implications of this finding for curriculum and assessment policy and practice in both the K-12 system and the college system?

#### Comments / responses/ discussion:

##### 1.1

Demographic changes – coming back to school for career retraining

Availability of courses is greater

Encouraging kids to take more of these course to support the learning

Work with the guidance counsellors more to identify math needs earlier in school – grade 10

Students want the easier course MAP4CI and there is no incentive or ministry/college requirement to take the higher level maths MCT4CI (fear of math) and they only need the lower level

Channelled into the lower levels (catch courses)

- **1.2 Gap closing strategies – for the schools**
- **Prep courses force students go back to previous learning and see it in a more structured way in the foundations/preparatory programs**
- **Increases the need to discuss this at the school and college level together to solve problems or eliminate the gaps**
- **Need to look at more engagement strategies in all levels of math education**
- **Need for staffing strategies and getting the best teachers into those classes and at the earlier stages of the program e.g. first semester at college**

# Questions for Deliberation

## 2. *Mathematics Achievement in College*

Figure 2 shows that mathematics achievement levels of first year college students have not increased significantly over the past three years. In addition, EQAO results have shown relatively modest increases in mathematics achievement at Grades 3, 6 and 9.

2.1 How do teaching and assessment methods used at both school and college levels affect student success? What other factors are at play here?

In particular, Figure 7 shows that the proportion of students taking college mathematics after only three mathematics courses in secondary school (the minimum required for secondary school graduation) has increased over the past three years to over 18%.

2.2 Does this data, along with the growing importance of mathematics for many careers, suggest that the number of mathematics courses required for graduation should be increased to four, or what other policy changes might be considered?

### Comments / responses/ discussion:

#### 2.1 Not related necessarily

Average of EQAO scores increase could be with those better students not the lower levels

Elementary and High schools have implemented more strategies for success

#### 2.2 forcing students to do things they may not want or do we embed the information elsewhere

- **Various reasons for these differences**
- **Grade 10 math mark is more indicative of the success for students than the Grade 11/12 curriculum**
- **Does the level of math matter if it is related to the grade 10 math?**
- **Data doesn't pick up all the factors e.g. don't do well at the higher level and withdraw rather than dropping down their math level**
- **Misalignment of college expectations in relation to expectations covered in high school**
- **Differences in college math courses as well across the province – Conestoga, Georgian, Mohawk, Humber - meets ministry standards but not necessarily the same outcomes**
- **Comparing college outcomes to secondary expectations**
- **Several colleges working with the high schools for articulation agreements and levels of math in high school can give an exemption for a college math**
- **Mohawk accepts students provisionally with summer math courses prior to starting in the fall**
- **Summer bridge school for students**
- **Smart start programs 3 weeks prior to starting**
- **Hot study – St. Lawrence College**
- **Math course technical level MCT4C1 isn't a requirement for the college technical programs – maybe it should be province wide**
- **The number of hours in the college math courses (45 or 60 hours) may not be sufficient and is a drastic drop from the number of hours in high school**

# Questions for Deliberation

## 3. Learning Skills

Participants at regional forums have often pointed out the importance of generic “learning skills” for student success in postsecondary education (and also in employment). The CMP 2010 Final Report references research from a variety of sources supporting this claim and both the Ministry of Education and the Ministry of Training, Colleges and Universities have policies stressing the importance of these skills.

- 3.1 What evidence is there that progress is being made at elementary, secondary, or postsecondary levels to enhance these skills?
- 3.2 What additional changes to policy and/or practice at all levels are required?
- 3.3 How can students and their parents become more aware that while marks on academic courses enable entry to postsecondary programs, learning skills can enable success at that level?

### Comments / responses/ discussion:

#### 3.1 attendance is critical to student success

Learning skills are critical to success – parent teacher meetings

Colleges have success courses to help with time management, learning skills

KPI results – self assessment of students

Grade seems to be a more important indicator for parents if it was high e.g. 95% – high grade may not worry about learning skills may not be indicative of learning

Colleges can't include attendance as a general grading - some programs have it due to the specialized nature – paramedic program etc.

#### 3.2 more communication of all levels with additional funding to support that communication

It is getting better and driven and funded by SCWI and needs to go beyond that

Demographics of the group – more higher risk coming to the door but that needs to be dealt with

Training on working with rubrics – for Ontario College Math teachers

Include the literacy faculty in the training for college faculty