



Teaching Computer Studies in Ontario: The Good...the Bad... ...and the Just Plain Stupid

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The Good

- ◆ So we have a new computer studies curriculum...
 - ◆ a greater variety of course options for students,
 - ◆ access to the growing field of computer engineering,
 - ◆ a curriculum the colleges and universities actually respect.



Questions We Need to Ask

- ◆ Is the curriculum being implemented?
- ◆ Are the teachers ready to teach it?
- ◆ Are the students ready to learn?
- ◆ Do we have the resources we need?
- ◆ Do we have the time we need?
- ◆ Is there going to be anyone left to teach CS?



Implementation Issues - Provincial Level

- ◆ MET's Ready - Fire - Aim Strategy
 - What about field testing?
 - What about a review process?
 - What about teacher preparation?

- ◆ MET's Philosophy
 - It's what goes up, not where it comes down.



Implementation Issues - School Level

- ◆ Lack of time for teachers to prepare.
- ◆ People who keep teaching the same old crap and think this is helping.
- ◆ Turf wars, certification rumours, and bad blood.
- ◆ There is no quality control.



New Demands

- ◆ There is a lot of new material in the curriculum that teachers need to master:
 - problem solving and design theory
 - debugging theory and practice
 - object oriented programming
 - code reuse
 - modular program development
 - career preparation
 - social and ethical issues



The Preparation Gap

- ◆ Software engineering concepts and object oriented programming didn't exist in the university curriculum 5 years ago.
- ◆ Faculties of Education are not preparing teacher candidates for the curriculum.
- ◆ The College of Teachers cannot revise the AQ courses until the Ministry gets the legislation out.



Lack of Opportunities

- ◆ At present, teacher inservice is:
 - antiquated
 - inadequately funded
 - not sufficiently connected to learning needs
 - expensive
 - overly controlled
 - inadequately monitored



What We Need Is:

- ◆ New rules about what qualifies as recognized professional development.
- ◆ Access to modularized learning opportunities directly linked to the curriculum.
- ◆ Pedagogically sound course content.
- ◆ Assessable online education.
- ◆ A commitment of funds to inservice.



Are Students Ready to Learn?

- ◆ Inconsistent levels of computer education at the elementary level create havoc for high schools.
- ◆ Students have trouble understanding the course descriptions.
- ◆ The grade 10 course codes are confusing students and parents.
- ◆ Students don't understand what computer science is.



Students continued...

- ◆ Kids are coming into Grade 11 CS with no experience.
- ◆ General level kids are being dumped into CS courses where they haven't got a hope of keeping up.
- ◆ This is an extremely rigorous curriculum...what about the rest of the kids?



What We Need Is

- ◆ Proper CS course codes in Grade 10.
- ◆ A separate CS curriculum policy document.
- ◆ Clearly defined skill prerequisites for each course.



And....

- ◆ Course descriptions students and parents can understand.
- ◆ More and different kinds of computing courses to meet the needs of all students.
- ◆ A mandatory Grade 9 course that actually teaches computing/application skills.



The Kids Are **Not** Alright

- ◆ Have trouble thinking for themselves.
- ◆ Have limited work habits.
- ◆ Have limited communication skills.
- ◆ Have little concept of ethical behaviour.



Curriculum Band-Aids

- ◆ Some teachers have reacted negatively to the soft skills embedded in the curriculum:
 - career preparation
 - social impact and ethics
 - problem solving
 - group work
 - presentation skills
 - debate skills



Why Us?

“If not us, then who.
If not now, then when?”



Resources: Equipment

- ◆ No new hardware or infrastructure initiatives have led to:
 - outdated/antiquated/ beat up/broken down hardware
 - complicated networks
 - insufficient software

“Computer science has become the poor cousin of school computing.”



Resources: Texts

- ◆ Ministry:
 - only provided additional funding for the “blessed few”
 - nothing for courses that never existed before
- ◆ Boards
 - using textbook funds as discretionary funds



We Need....

- ◆ A serious (big bucks) commitment to:
 - upgrading existing computers, networks, and software (end user experience)
 - a sensible plan for network management at the school level
 - a reasonable replacement schedule for outdated equipment (sustainability strategy)

“Only an idiot would think you can teach new skills with old junk.”



We Need....

- ◆ A serious (big bucks) commitment to:
 - new resources for new courses
 - new resources for existing courses
 - a more flexible definition of classroom resource.

“Only an idiot would think that the computer eliminates the need for good learning and reference materials.”



Time Issues

- ◆ Time to address all the expectations?
- ◆ Time to address network management?
- ◆ Time to master new content skills?
- ◆ Time to master new technology?
- ◆ Time to master new pedagogical skills?
- ◆ Time to be a human being again?



Leaving

We are already starting to see the results of a major CS brain drain:

- ◆ the old farts are gone so old mistakes are being repeated
- ◆ people at the boards who don't have a clue are making the decisions
- ◆ good teachers are going back to other disciplines



No New Blood

- ◆ Critical teacher shortage predicted (here!).
- ◆ Faculties of Education are scraping the bottom of the candidate barrel.
- ◆ Why?
 - more money in industry
 - more respect in industry
 - who needs the aggravation



We Need...

- ◆ A comprehensive initiative to attract good teachers candidates to CS.
- ◆ Incentives to keep CS teachers in the job.
- ◆ A commitment to helping teachers maintain their skills.
- ◆ An end to teacher bashing.
- ◆ More support for the work being done by professional associations.



We All Need...

- ◆ To breathe.
- ◆ To maintain our sense of humour.
- ◆ To keep our heads when those about us are losing theirs.
- ◆ To keep in mind the ultimate good of the students.
- ◆ To take better care of our selves.