

Working Group 9: Teacher Education

Position paper from Wacek Zawadowski

There is vast literature on Teacher Education, about urgent need for change to match the standards achieved in other important professions. The problem how to do it is still open.

It is not enough that we know that there is need to change. There must be a **political will** to solve that problem.

I want to be as short as possible, but to show that the problem is widely known and discussed, and that discussion has its history, I must mention some sources.

The Cockcroft Report showed that mathematics taught in the school is oldfashioned and rarely used and needs reform. That were early eighties. Much has happened since that time: great change in information technology and big social changes and in labour market. Courses in informatics took over part of responsibility for algorithmic skills and visual communication in some school systems in Europe. Time allotted to mathematics shrinks.

Wilson and Daviss state that the problem is not only with mathematics, but it is a general problem of the whole educational system:

1. Old teaching techniques doesn't adequately impart the new skills.
2. Teachers too often lack proper subject skills.
3. Educators misunderstand the nature of teaching. "Few teachers have been shown that effective teaching is itself a higher order skill. Most have never seen it practised as such, and virtually none have been taught to coach students toward mastery instead of to teach by information transfer."

At the web page of Wu, we can see symptomatic evolution of approach to the problem.

E.g. the words "Teacher training" slowly over time evolve into "Teacher education".

Romantic situation of a old style lecture "Sage on the stage" is slowly giving in to "Guide on the side" style.

In his paper [Wu 1999] he states following principles:

- 1 No extended lecturing
- 2 Keep mathematics simple and relevant to K-12
- 3 There should be grade level separation
- 4 There should be year-round follow-up programs to monitor the teachers' progress
- 5 Teachers should be paid for participating in professional development

How to achieve the change, when academic schools do not have funds to their traditional activities including research programs? And when politicians vow that "no child should be left behind" and at the same time tacitly imply that "teachers are no children"?

We should take our professional development into our own hands. And at the same time pound at our local members of parliament and politicians. They must feel our pressure.

LITERATURE

Cockcroft Report, "Mathematics Counts"

James Lewis, Spotlight on Teachers, Notices AMS vol. 48 no. 4, 2001, p. 396-403

Kenneth W. Wilson, Bennett Daviss, Redesigning Education, Henry Holt and Company, NY 1994, especially p. 81 and further

Hung Hsi Wu, Professional Development of Mathematics Teachers, Notices of the AMS, vol 46 no 5, May 1999, p. 535-542,

Visit the web page: [www//math.Berkeley.edu/~wu/](http://www.math.Berkeley.edu/~wu/)

Every member of the group is asked for a one page report on teacher education in her/his country, and especially on maths teacher education.