

‘The Place of Mathematics Education in Ireland’s Future’

**A Symposium organised by the Faculty of Engineering, Mathematics
and Science, Trinity College Dublin**

Summary & Recommendations

Prof. Clive Williams

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Summary

A National Mathematics Symposium, organised by Professor Clive Williams and the TCD Faculty of Engineering, Mathematics and Science and hosted by the Royal Irish Academy was held on 2nd February 2010. Chaired by Dr. Chris Horn, cofounder of Iona Technologies and President of Engineers Ireland, speakers included Minister for Education and Science, Batt O’Keeffe, Mr. Bill Lynch of the National Council for Curriculum & Assessment, Elizabeth Oldham of the Irish Mathematics Teachers’ Association, Ms Patricia Callaghan, Academic Secretary, TCD, Dr. Maria Meehan, School of Mathematical Sciences, UCD, Ms Una Halligan, Chair of Expert Group on Future Skills Needs, Mr. P J Rudden, Vice-President, Engineers Ireland and Mr. Paul Sweetman, Director, ICT Ireland & the ISA in IBEC.

Mr. Bill Lynch of the NCCA opened the presentations by giving a summary of the Project Maths initiative, particularly the emphasis on teaching for understanding and not just for test, and its current status. Ms Elizabeth Oldham then gave a perspective on behalf of the Mathematics Teachers’ Association, noting the central role of Mathematics in the recovery of the economy and the critical importance of developing teachers’ fluency and competence.

Dr. Chris Horn left the symposium for an hour and Prof. Clive Williams took over as Chair, introducing Ms Patricia Callaghan, TCD Academic Secretary, who expressed the view that the need to maximise points for entry to third level courses has distorted subject choice at second level and has seriously disadvantaged higher level Maths: she argued for bonus points to reflect the workload and student effort involved in higher level Maths.

Dr. Maria Meehan reported in particular on the role of undergraduate volunteers in secondary schools, and noted that the feedback from some secondary school students undertaking honours level Leaving Certificate Mathematics contained a strong desire for additional recognition for the effort required. Ms Una Halligan emphasised the need to raise the level of mathematical achievement in Ireland and the importance of growing the pool of graduates for the Science, Engineering and Technology, business and professional sectors.

Mr. P J Rudden then gave an overview of a report which Engineers Ireland has since launched, containing some analysis and recommendations on the education of Mathematics at second level, for the Department of Education & Science and by invitation for the Oireachtas Joint Committee on Education and Science. The final report is due to be launched in the coming weeks

After lunch, Mr. Paul Sweetman of ICT Ireland and the ISA, gave an international perspective on the current ranking of Ireland as regards Mathematics competency.

Three volunteer rapporteurs: Mr. Ronnie Breen, Department of Enterprise, Trade and Employment, Prof. Tom Brazil of UCD and the RIA, and Mr. Sean Gannon of TCD, led three breakout sessions, the audience being divided into three and each group challenged to come back (after an hour) and deliver at least one and not more than three recommendations of who should do what, by when and why.

The Minister Batt O’Keeffe then arrived and gave a short presentation on the status of Project Maths, and the priorities which he is setting to develop the competence and confidence of Mathematics teachers with the new syllabus. He also noted his announcement to establish an advisory group, including industry and academia, to review the progress of Project Maths to date and to advise on whether or not to re-introduce "bonus points" for honours level Leaving Certificate mathematics

The Minister was then invited to listen to the key top recommendations from the three rapporteurs.

Prof. Tom Brazil spoke first, and emphasised his group's strong support for the Project Maths initiative. He noted that resources to support the initiative were still insufficient. His group very strongly urged that all stakeholders - industry, professional associations and especially Engineers Ireland, government agencies and academia - should proactively support Project Maths. His group also strongly felt that the effort required for honours level Leaving Certificate Mathematics should be rewarded by all the Universities and Institutes of Technology by awarding double CAO points.

Mr. Sean Gannon then took the floor and reported that his group strongly felt that school mathematics teachers needed support and encouragement to up skill for mathematics, including Project Maths. His group felt that the Teachers Council should show flexibility and recognise that those who had taken additional courses in mathematics, beyond their primary degree, should be accepted as competent to teach mathematics.

Mr. Ronnie Breen reported that his group also strongly supported Project Maths, and that it is critical that the Teachers Council remove any doubt that postgraduate courses to enable mathematics teaching are explicitly recognised as sufficient to teach mathematics. His group also noted that professionals with strong mathematics skills, and in particular unemployed professional civil engineers, who wished to switch their careers to become mathematics teachers, should be accommodated by the Teachers Council.

The Minister then returned to the podium and expressed delight that all three rapporteurs had expressed strong support for Project Maths. He noted the resourcing issues, and concerns about the Teachers Council. He did not wish to comment on the explicit recognition of the additional effort for honours level Leaving Certificate Mathematics, but would defer to the advisory group which he was appointing.

Approximately 90 people nationwide attended including third level academics, second and primary level teachers and associations, professional bodies, business associations and public servants. It is envisaged that recommendations and discussions from the Symposium will inform government and key decision makers when addressing this extremely important issue. Presentations as given at the event may be viewed at: <https://www.tcd.ie/ems/mathematics-symposium/presentations/>

Recommendations:

- Overall there was strong support for the Project Maths initiative. It was noted that resources to support the initiative were still insufficient. All stakeholders - industry, professional associations and especially Engineers Ireland, government agencies and academia – are strongly urged to proactively support Project Maths
- The need to maximise points for entry to third level courses has distorted subject choice at second level and has seriously disadvantaged higher level maths. The group recognise the need for additional points to reflect the workload and student effort involved in higher level Maths. The effort required for honours level Leaving Certificate Mathematics should be rewarded by all the Universities and Institutes of Technology. This may be achieved through bonus points; double points etc, and should be applicable to applications to all third level courses
- It was strongly agreed that second level teachers of Mathematics require support and encouragement to up skill for Mathematics
- It is critical that the Teachers' Council remove any doubt that postgraduate courses enabling the up-skilling of Mathematics teachers are explicitly recognised as sufficient to teach Mathematics
- It was recommended that the Teachers' Council should show flexibility and recognise those who had taken additional courses in Mathematics, beyond their primary degree, accepting these individuals as competent to teach mathematics. Professionals with strong mathematical skills, and in particular unemployed engineers, who wished to switch their careers to become Mathematics teachers, should also be accommodated
- The role of undergraduate student volunteers in secondary schools should be explored
- Industry and Academia should be encouraged to engage in outreach activities with secondary schools e.g. 'School Champion' programmes etc, which would highlight the importance of Mathematics and the range of careers available to those with good mathematical skills. Institute of Guidance Counsellors and IBEC to be actively involved in this initiative
- The central role of Mathematics in the recovery of the economy and the critical importance of developing teachers' fluency and competence was unanimously acknowledged
- In relation to Ireland's current 'average' rating on the PISA Maths table it was strongly felt that in order to become a knowledge economy, a key objective should be to increase our position on this table

- The above recommendations should be considered by the advisory group soon to be established by the Minister for Education and Science to review the progress of Project Maths to date and to advise on whether or not to re-introduce "bonus points" for honours level Leaving Certificate Mathematics
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