

Draft National Plan to Improve Literacy and Numeracy in Schools

Institute of Physics in Ireland Response

February 2011

The Institute of Physics in Ireland welcomes the opportunity to submit a response to the Department of Education and Skills consultation on the draft national plan to improve literacy and numeracy in schools.

The Institute of Physics in Ireland is a scientific membership organisation devoted to increasing the understanding and application of physics in both Northern Ireland and the Republic of Ireland. It has over 2000 members, and is part of the Institute of Physics.

The Institute of Physics has a world-wide membership of over 40, 000 and is a leading communicator of physics-related science to all audiences, from specialists through to government and the general public. Its publishing company, IOP Publishing, is a world leader in scientific publishing and the electronic dissemination of physics.

Skills in both numeracy and literacy are essential to the understanding of science in general and physics in particular. Indeed, in many ways science acts as bridge between literacy and numeracy. Hence the Institute strongly concurs with the aspiration to enhance these areas. The IOPI is broadly in agreement with the strategy as outlined and offers some additional comments.

Initial Teacher Education (ITE)

The Institute agrees with the recommendation to raise the standard required in mathematics for entry to ITE. This would both increase the numbers of mathematically able students going into teaching and likely act as a driver to raise mathematical standards generally in secondary schools.

In relation to the duration of ITE programmes we agree that the training programme for primary teaching should be increased from three years to four to allow time for the acquisition of key skills in the teaching of literacy and numeracy. However, we would caution against the removal of subject knowledge as also recommended in the plan. This is particularly important in relation to the teaching of science at primary level since a significant number of trainee teachers may not have taken any science at Leaving Certificate level.

In relation to ITE programmes for post-primary, we agree that with the recommendation to increase the duration of the Post Graduate Certificate in Education (PGCE) programme (for those following a consecutive model of teacher education) to a minimum of two years and to extend the four-year concurrent model for initial teacher education for post-primary teachers to a range of academic subjects. However we note that in Finland, which has consistently

shown high achievement in international comparisons of numeracy, the standard teacher qualification is at Masters degree level and would recommend that this should be introduced in Ireland also. This is also likely to have a significant positive impact on the teaching of the other subjects, particularly in science.

Increase in classroom time on literacy and numeracy

The Institute strongly agrees that there should be a significant increase in the time spent on the teaching of numeracy – with a recommendation specifically to increase time to at least match the OECD average of 16% of time on mathematics.

The plan suggests *‘that the specific total times for literacy and mathematics should rise from seven hours per week to ten hours per week in first to sixth classes and that this time should come from effectively reducing the time spent on other subjects such as drama, music and visual arts.’* The Institute suggests that **other** subjects to the Arts should be considered for a reduction in hours as Ireland is already at the OECD average time of 12% on the Arts (see table below).

The Institute welcomes the statement that time should **not be reduced** from science at primary level, particularly as Ireland is already at the bottom of the table for science teaching with only 4% of time at primary spent on the subject compared to an OECD average of 9%. If anything, given the cross over role of science between literacy and numeracy, the Institute would suggest that teaching time for science should also be increased.

In considering where the additional time should be found, in order to enable increased time spent on numeracy, it may be useful to look at the distribution of time spent on subjects in comparison with other OECD countries and in Europe to determine which subjects should have a reduction in hours.

Instruction time per subject as a percentage of total compulsory instruction time for 9-11 year-olds

| | Ireland | Finland | OECD average | EU19 average |
|----------------------------------|---------|---------|--------------|--------------|
| Reading, writing and literature | 29 | 21 | 23 | 24 |
| Mathematics | 12 | 18 | 16 | 16 |
| Science | 4 | 10 | 9 | 8 |
| Social studies | 8 | 2 | 8 | 7 |
| Modern foreign languages | x | 9 | 8 | 10 |
| Technology | nil | nil | 2 | 2 |
| Arts | 12 | 19 | 12 | 12 |
| Physical education | 4 | 9 | 9 | 9 |
| Religion | 10 | 5 | 4 | 4 |
| Practical and vocational skills | nil | nil | 1 | 1 |
| Other | 14 | nil | 5 | 4 |
| Total compulsory core curriculum | 92 | 94 | 96 | 97 |
| Compulsory flexible curriculum | 8 | 6 | 4 | 3 |
| Total compulsory curriculum | 100 | 100 | 100 | 100 |
| Non-compulsory curriculum | nil | 7 | 3 | 4 |

Figures obtained from 2010 OECD Report, Education at a Glance

Time allocation for the statistics for Ireland is based on the following weekly framework for a 36.6-week school year in primary education: English (4.5hours); Irish (3hours); mathematics (3hours); social, environment and scientific education (3 hours, divided between science and social sciences); social, personal and health education (0.5 hours, included in "other"); physical education (1 hour); arts education (3 hours); discretionary curriculum time (2 hours); religious education (2.5 hours); assembly/roll call (2.5 hours, included in "other"); and small breaks (0.8 hours, included in "other"). Total 25.8 hours. Recreation (typically 2.5 hours) is not included in the curriculum tables.

Reading, writing, and literature: reading and writing (and literature) in the mother tongue, reading and writing (and literature) in the language of instruction, reading and writing in the tongue of the country (region) as a second language (for non-natives), language studies, public speaking, literature.

Data for modern foreign languages for Ireland is included in the figure for compulsory flexible curriculum

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