

Forfás



**Forfás Submission
to the
Minister for Education and Science
on the
YES Review**

September 2004

1. Introduction

1.1 Background

Forfás is the state agency with responsibility for providing policy advice to the Dept. of Enterprise, Trade and Employment, on enterprise, trade, science, technology and innovation in Ireland. In view of the critical importance of education for each of these policy areas, Forfás has a keen interest in all aspects of the Irish education system. Forfás therefore believes that the current review of the public education system is extremely timely for the reasons set out by the Minister in the foreword to the discussion document for the review¹ and it welcomes this opportunity to provide input, from an enterprise perspective, into the process.

The enterprise and education sectors have a mutually complementary role in advancing the Lisbon Agenda², which has the overarching goal of maximising the quality of life for all. Integral to this are maximising social inclusion, providing high quality employment and delivering improvements in the social fabric. Ireland's success in achieving these aims is predicated to a significant degree on a constructive engagement between enterprise and education.

This submission focuses on the economic role of the educational system; this is a reflection of Forfás' terms of reference, and competence, and should not be interpreted as a lack of appreciation or awareness of the equally important cultural and social aspects of the educational system.

1.2 Education and Enterprise

Education is an integral part of the economic fabric of the state. It has played a pivotal role in Ireland's economic development in recent decades and our future economic success will be contingent on the performance of the education system. This section outlines the mutual benefits of this engagement.

- i. Education provides the skills and human capital that enterprise needs to thrive and grow;
- ii. High standards of educational attainment lead directly to high levels of aggregate productivity;
- iii. The Irish education system has been a major factor in Ireland's success in attracting Foreign Direct Investment over recent decades;
- iv. Education is a key source of the intellectual capital and innovation that creates new business opportunities and drives economic growth. This aspect of education will be of increasing importance in the years ahead as Ireland makes the transition to an innovation-driven, knowledge economy;
- v. Enterprise offers an outlet for individuals to utilise the skills they acquire through education and consequently an opportunity to reap the rewards (material and intellectual) of their labours in the education system;
- vi. Enterprise thus helps motivate students in their studies;
- vii. Enterprise can enrich the educational experience for both students and teachers by virtue of the need to periodically refresh curricula as the needs of the enterprise sector evolve.

¹ Your Education System, *Dept. Education and Science*, Jan. 2004.

² "The Union has today set itself a new strategic goal for the next decade: to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion", European Council, Lisbon, March 2000.

On a broader level, enterprise makes a significant contribution to society overall: it provides employment for approximately 1.5 million individuals in Ireland and contributes in excess of €5.5B in corporation tax³ to the exchequer annually. Enterprise therefore directly supports a significant proportion of state expenditure on education, health and infrastructure.

In summary, education and enterprise are inextricably linked; the relationship between them should be highly symbiotic. Therefore, it is imperative **that enterprise must be one of the key considerations in policy making for education.**

1.3 Education and the Individual

The OECD has amassed a significant body of empirical evidence⁴ which shows that employment rates among those with low levels of educational attainment are significantly lower than among those with high levels of attainment; furthermore, this gap is growing.

A fundamental consequence of any mismatch between the skills produced by our educational system and the needs of enterprise is that the individuals concerned will have fewer, and less valuable, employment opportunities than should be the case, and their prospects for career progression will be diminished.

2. Strategic Issues for 21st Century Education

This section identifies a number of priority issues for education over the medium-term from the enterprise perspective.

2.1 Quantity, Quality and Quality Assurance

The Irish education system has been a very positive and successful force for national and personal development. However, looking to the future, Forfás is of the view that the overall standard of the Irish education system must be raised; Ireland must strive for continuous improvement and ensure that it achieves, and maintains, a high ranking among OECD states. This applies to curriculum, teaching and assessment. In order to achieve this it is imperative that a credible and independent regime of Quality Assurance is integral to all aspects of the education system, at each level. The proposed standardised testing of literacy and numeracy at primary level is to be welcomed in this regard.

Ireland currently achieves a completion rate of 83.5% at senior cycle in second level. The 16.5% drop-out rate from secondary education is a disadvantage not only for the students involved, but also for the economy: it limits our capacity to produce workers with the level of knowledge and skills required to drive and sustain a knowledge economy. As most education and training programmes for medium- and high-level skills require a Leaving Certificate as a prerequisite, those who have not attained that level of education are excluded. It is important that the extent of early school leaving be reduced and the retention rate for upper-secondary students increased. **Forfás believes that 90% of second-level students should complete the Leaving Certificate, or an equivalent NFQ⁵ Level 5 award, by 2010.**

³ 2003 Annual Report, *Revenue Commissioners*, 2004.

⁴ Employment Outlook 2004, *OECD*, 2004.

⁵ National Framework of Qualifications.

The **professional development of teachers** and the periodic refreshing of their skills are prerequisites for achieving a top-ranking education system; a recent OECD study⁶ ranked Ireland in the bottom three out of fourteen countries surveyed in relation to the professional development of teachers in the senior cycle.

Several factors will contribute to a significant expansion of the numbers at third level over the next decade. Enhancing our output of skilled graduates has already been identified as a requirement for sustained economic growth. It is estimated⁷ that 300,000 additional workers with third-level qualifications will be required over the period 2001-2010; in order to meet this challenge we need to raise our levels of participation and graduation. Forfás endorses the proposals by the HEA⁸ and the Enterprise Strategy Group that Ireland should aim to be in the top decile of OECD states for third level graduation rates. The implication of such a target is that the first time admission rate for school leavers would need to increase from the current level of 53% to over 70%. In addition, increases in mature and/or second-time students, broadened access across socio-economic groups and increased mean length of stay in third-level (due to increased rate of progression from certificate to diploma to degree to post-graduate courses) will further drive up the third-level population. Overall, the HEA have projected that in order to meet our national and social priorities the total third-level student population must rise from the current level of 125,000 to over 176,000 by 2015. Such a development will have major implications for the resource requirements of the third-level sector.

In addition to the quantitative considerations in the preceding paragraph, future enterprise will require a greater proportion of highly skilled graduates and this has implications for the quality of degrees programmes as well as rates of progression to advanced degrees;

There is a significant body of opinion, both in the enterprise community and among academics that standards have declined in the Irish education system over the past decade, both at second and third level. Empirical evidence to support this perception is contained in an earlier submission to the YES review⁹. This decline has occurred despite the fact that the distribution of grades awarded has remained roughly constant over this time through the phenomenon known as “Grade Inflation”. This trend must be strongly countered.

The Irish Universities Quality Board has an important role in relation to university education. As a development of this initiative, **Forfás recommends that the scope of Quality Assurance, as defined in the Universities Act (1997), should be made more explicit so as to further strengthen systems to ensure institutional assessments of relevance of curricula and research programmes to contemporary, or future, enterprise.**

Forfás advocates that Ireland adopts the target of being within the top decile of OECD states for both graduation rates at third level and the quality of its graduates, by 2010.

2.2 Governance

The Enterprise Strategy Group (ESG) has identified governance, particularly at third level, as a critical issue for the future of the enterprise sector. The governing authority of each institution has responsibility for ensuring that the institution is sufficiently dynamic for contemporary economic and societal needs; specifically, to ensure that curricula and research agenda track the changing needs of enterprise; and additionally to drive the commercialisation of IP being generated within the institution.

⁶ *Completing the Foundation for Lifelong Learning: An OECD survey of Upper Secondary Schools*, OECD, 2004.

⁷ *Occupational Employment Forecasts by Region for 2010: FÁS/ESRI Manpower Forecasting Studies Report No. 11*, FÁS/ESRI, 2004.

⁸ *Strategy Statement 2004-2007*, HEA, 2004.

⁹ *Grade Inflation in HETAC Awards*, submission to YES Review, June 2004.

- The ESG proposed that **governing authorities should be of workable size** to ensure their efficacy and that they **should also have a significant representation from the enterprise sector**. It called for greater representation of the sector on associated bodies such as the HEA. **Forfás endorses this recommendation;**
- There should be **a rebalancing of the composition of boards of HETAC, FETAC and the NCCA**, when they are next renewed, in order to ensure that enterprise has a greater voice on these bodies;
- Forfás recommends that institutions **should be obliged to consult with appropriate representatives of enterprise** when reviewing programmes of study and research at the university;
- Finally, in order to maximise coordination and integration across the third level sector and to realise the full potential of the binary system of higher education, **Forfás recommends that the Institutes of Technology should be brought under the auspices of the HEA as a matter of urgency** and further recommends that such a transfer should provide for institutional autonomy for the institutes.

2.3 Resources

Ireland was ranked 19 out of 28 countries by the OECD¹⁰ in terms of its *overall* educational expenditure, spanning primary through tertiary, per full-time equivalent student¹¹ in 2000. The top ranking country was the US which invested \$10,200¹² per student; the figure for Ireland was \$5,000. The OECD country mean was \$5,800. Table 1 compares Ireland’s expenditure on education at pre-school, primary, secondary and tertiary with that of the US and the OECD country mean.

	Pre-school (3yrs+)	Primary	Secondary	Tertiary
Ireland	2,900	3,400	4,600	11,100
US	8,000	7,000	8,900	20,400
Country Mean	4,100	4,400	6,000	9,600
Ireland’s Rank	17 th	19 th	20 th	9 th

Table 1: Expenditure on Education per Student in US\$ (PPP) in 2000

In order for the Irish education system to satisfy the requirements of enterprise, as well as broader societal and educational needs, in the years ahead, adequate resources must be provided from both public and private sources. A number of principles should be observed when allocating resources.

- All investment decisions should be motivated by a clearly defined objective in relation to a specific and transparent outcome;
- All programmes of investment should be audited periodically for efficiency and value for money;

¹⁰ Education at a Glance 2003, *OECD*, 2003.

¹¹ Expenditure per student is more strongly correlated with educational outcomes *i.e.* the skill-level achieved by the students, than other metrics such as expenditure relative to GDP or GNP and is therefore the more relevant metric in this context.

¹² All expenditures in this section are normalised for cost of living (Purchasing Power Parity).

- At third level, funding allocations should be correlated with performance on outcomes such as the quality of graduates and drop-out rates, as advocated by the HEA;
- The Government commitment to the **public funding of research** must be maintained. Forfás endorses the recent report of the Inter-Departmental Committee on Science, Technology and Innovation¹³ in this regard.

2.4 Student Contribution

Active consideration should continue to be given to the issue of the individual's contribution to the cost of higher education. The mechanisms through which such a contribution could be made include fees, vouchers and loans. The development of policy in this area should be on a carefully planned basis and should have regard to the development and application of policy in other countries and the consequences for social inclusion, access, increased overall participation, ensuring a robust financial base and ensuring that the sector contributes to national policy goals.

2.5 Life-Long Learning

- In excess of 570,000 people currently in the Irish labour force have not completed senior cycle education¹⁴.
- As mentioned in Section 2.1, it is estimated that 300,000 additional workers with third-level qualifications will be required over the period 2001-2010.
- Irish participation in life-long learning is low relative to the EU-25; the Irish rate of 9.7% is well below the 34.2% achieved in the top ranked state, Sweden¹⁵.
- 88% of the current Irish labour force will still be in the labour force in 2015¹⁶.

Taken together, these factors underline the need for effective life-long learning. Significant groundwork for life-long learning has been laid: the Task Force on Life-Long Learning¹⁷ issued a very comprehensive report and a number of important initiatives have flowed from it. These include the establishment of the National Adult Learning Council and the National Qualifications Authority of Ireland. While the NQAI has made significant progress in carrying out its mandate, progress in relation to NALC has been disappointing. It is important that the momentum is not lost and that the **NALC is made fully operational as a matter of urgency.**

More generally, **the “One-step Up” initiative proposed by the ESG should be implemented.**

2.6 Commercialisation of Intellectual Property

A key responsibility of the third level sector in an innovation-driven, knowledge economy will be to act as a source of scientific and technological innovation. This reasoning underlies the SFI programme of investment in basic research. However, in order for this strategy to yield economic dividends, there

¹³ Building Ireland's Knowledge Economy - The Irish Action Plan for Increasing Research and Development to 2010, *Dept. Enterprise Trade & Employment*, 2004.

¹⁴ Census 2002 Vol. 7 Education and Qualifications, *CSO*, 2004.

¹⁵ Quarterly National Household Survey: Educational Attainment, *CSO*, Jan. 2004.

¹⁶ Based on age profile of current labour force from “Quarterly National Household Survey”, *CSO*, Sept. 2004.

¹⁷ Report of the Taskforce on Lifelong Learning, *Dept. Enterprise Trade & Employment*, 2002.

must be mechanisms in place to turn basic research into applied research and ultimately, commercial products and services.

Therefore, the commercialisation of Intellectual Property generated in the HEIs must become part of the core mission of the institutions. In particular, **a concerted and sustained effort must be made by the HEIs to forge links with enterprise and to transfer technology into the commercial arena.**

2.7 Pace of Reform

Notwithstanding the need for full consultation and the desirability of achieving consensus among all stakeholders in relation to any proposed changes in the education system, there is a degree of urgency attached to the reforms proposed in this document. This is not only because of the long-lead time for the impact of reforms to percolate through to the labour force, but also because each delay of one year results in a further cohort missing out on the benefits. **Therefore Forfás urges that the pace of reform in the education system be expedited.**

3. Crucial Skills for 21st Century Enterprise

This section identifies the specific skills which will be of greatest relevance to enterprise in the years ahead.

3.1 Entrepreneurial Skills

A key feature of enterprise development in Ireland in the years ahead will be a greater reliance on indigenous entrepreneurs to drive economic growth and create employment than hitherto. The educational system can greatly facilitate this change by helping to foster a culture that is conducive to innovation and entrepreneurship.

Furthermore, entrepreneurship should not be viewed as being synonymous with creating a new business. Entrepreneurship embodies a range of skills, including the ability to innovate and to provide leadership, which will pay dividends for the individual and the economy in any employment context.

The extent to which entrepreneurship can be taught as a conventional skill is often questioned. Clearly, the innate abilities of an individual, coupled with the overall socio-economic environment (ease of establishing a new business, access to finance and advice as well as the prevailing cultural attitudes to entrepreneurship) are extremely important factors in determining whether they pursue an entrepreneurial path or not. However, the propensity for individuals to become entrepreneurs can be greatly enhanced through education and training.

The role that secondary education has in promoting entrepreneurship has been highlighted by a recent EC report¹⁸:

“the objectives of education will include nurturing in young people those personal qualities that form the basis of entrepreneurship, such as creativity, spirit of initiative, responsibility, capacity of confronting risks, independence.”

¹⁸ Education and Training for Entrepreneurship - Final report of the Expert Group, *European Commission*, 2004.

A critical skill for entrepreneurial activity and for successful penetration of export markets is 'bridging social capital'. This is a fundamental skill and not one acquired at the 'technical' stage, along with business organisation, human resource management etc. Bridging social capital is an individual's and a group's ability to forge links beyond their own social group. It is acquired in the family and in school and society. Schools can facilitate this capacity/skill through group work, sports and other team work and through programmes which bring students into purposeful contact with groups which are different from themselves. This difference can be on any basis e.g. social class, intellectual ability, age, nationality, urban/rural etc. Such interaction is even more crucial for children from disadvantaged backgrounds, as they have greater difficulty in making those contacts needed to develop new business opportunities, due to the individual and structural barriers they encounter.

Forfás believes that the educational system should actively promote entrepreneurship. There are a variety of ways in which this can be achieved, ranging from instilling a positive attitude to entrepreneurship in young people, via the promotion of positive role models and presenting failure as a prerequisite for success, to providing the enabling or prerequisite skills needed for success. These enabling skills range from an understanding of business, financial and legal issues, to generic or soft skills such as team-working, inter-personal, influencing *etc.*

3.2 Science, Engineering and Technology Skills

Science subjects must be afforded greater priority at second level

The development agencies and IBEC have stressed the vital role that Science, Engineering and Technology (SET) skills will play in the economy in the years ahead. These skills are prerequisites for an innovation-driven, knowledge economy. Ireland must cultivate SET skills, in a sustained manner, if it is to successfully evolve from a production-oriented economy to an innovation-driven one.

The Task Force on the Physical Sciences carried out a very comprehensive review of the decline in interest in these subjects by young people and put forward a comprehensive set of recommendations¹⁹ for addressing the problem in 2002. However, the Leaving Certificate results for 2004, both in terms of numbers taking science subjects and their performance level in these exams, demonstrate that there has been no substantial improvement. **Forfás is disappointed at the progress on these recommendations and urges that they be implemented as a matter of priority.**

3.3 Mathematics

In 2004 approximately 20% of those sitting the Leaving Certificate failed to achieve a sufficiently high grade to satisfy the entry requirements for most third level courses²⁰. While not every second level student wants, or needs, to progress to a third level course, every effort should be made to ensure that they have the option of doing so if they so choose. It is unacceptable that such a large cohort have this life-sculpting path closed off to them at such an early age.

The problem in relation to mathematics is underscored by Ireland's poor ranking of 16th, out of 28 OECD states, for mathematical literacy among 15 year-olds²¹.

¹⁹ Report and Recommendations of the Task Force on the Physical Sciences, *Dept. Education & Science*, 2002.

²⁰ This percentage includes those who did not a passing grade at both higher level and lower level, as well as those who opted for Foundation Mathematics.

²¹ Programme for International Student Assessment (PISA), *OECD* 2000.

Furthermore, mathematics is a foundation subject and a prerequisite for all tertiary science, engineering and technology courses. **Therefore tackling under-performance in mathematics at second level is imperative** if the supply of these skills is to be boosted.

3.4 ICT

- The ubiquity of Information and Communications Technology (ICT) in the future will elevate ICT literacy to the status of a core skill, on a par with reading and mathematics; ICT literacy will become a life-skill as much as a career skill. This inevitability must be reflected in the priority that is afforded to ICT in the educational curriculum.
- The challenges facing the Irish education system in this regard are further underlined by a recent OECD study²² which ranked Ireland in the bottom three out of fourteen countries surveyed in relation to the use of computers in schools.
- ICT skills will also be a key facilitator of life-long learning through e-learning and distance learning. A recent US study²³ has identified the use of leading-edge technologies as one of the six key elements of 21st century learning.
- ICT offers great potential for developing new and innovative teaching practices; these could be of particular benefit to pupils with learning difficulties or those from a disadvantaged background.
- In the light of the foregoing, **Forfás believes that embedding ICT in the educational system, at all levels, should be designated a priority for investment.**
- **ICT infrastructure (broadband, PCs, software, on-going support) should be provided as an integrated service to schools.**
- Equal priority must be given to integrating ICT into the curriculum and Forfás welcomes the on-going work by the NCCA²⁴ on this issue. **The professional development of teachers** must also be an integral part of these reforms.

3.5 Soft Skills

Soft, or generic, skills such as inter-personal skills, influencing and negotiating, team working, will be of equal importance to the specific intellectual skills highlighted in the previous sections for future enterprise.

Interpersonal skills such as communications, participation in groups, selling or persuading skills are key to success in the enterprise sector, and most particularly in the entrepreneurial sector.

- The *services* sector of the Irish economy is primed for significant expansion over the next decade²⁵. Inter-personal interactions are fundamental to the provision of services and

²² *Completing the Foundation for Lifelong Learning: An OECD survey of Upper Secondary Schools*, OECD, 2004.

²³ *Learning for the 21st Century, Partnership for 21st Century Skills*, Washington DC, 2003.

²⁴ *Computers and Curriculum: Difficulties and Dichotomies*, NCCA, 2004.

²⁵ *Occupational Employment Forecasts by Region for 2010: FÁS/ESRI Manpower Forecasting Studies Report No. 11*, FÁS/ESRI, 2004.

consequently soft skills will be crucial for this sector, particularly for internationally-traded services or shared services²⁶.

- Collaboration and engagement between individuals underpins successful innovation;
- Modern high-productivity work practices hinge on greater individual autonomy in a team-centric work organisation.

Therefore, **Forfás endorses the findings and recommendations of the recent study carried out by FÁS, on behalf of the Expert Group on Future Skills Needs, on soft skills²⁷.**

In the increasingly cerebral work environments of the future, critical thinking and problem solving abilities will be prized by enterprise and consequently of great benefit to individuals proficient in these skills. In a similar vein, the degree of success of enterprise at both the macro and micro levels will be determined in large part by the creativity of the individuals engaged at all levels in enterprise. While it may not be possible to teach these skills in a formal, academic manner, they can be cultivated implicitly over time by reducing the emphasis on rote learning and making analysis an integral part of the learning process. Thus there is a requirement for fundamentally different pedagogical approaches such as a greater use of project-based learning.

3.6 Foreign Language Skills

One of the principle themes in the recently published report from the Enterprise Strategy Group²⁸ is the need for indigenous enterprise to vastly improve its competence in Sales and Marketing in order to be “*closer to their customers*”. Specifically, the report identified the “*ability to negotiate, transact business and develop customer relationships in languages other than English*” as a prerequisite for achieving this goal. The economic importance of language skills for both indigenous and foreign-owned firms has also been investigated by the Expert Group on Future Skills Needs²⁹. A key message in that report is that the availability of an internal pool of language skills would greatly bolster efforts to attract FDI in the future, as well as enhancing the exporting capacity of the indigenous sector. The education system, at all levels, has an important role to play in providing this ability.

Significant advances in language provision have occurred since 2000 with the introduction of innovative pilot programmes at both primary and secondary level³⁰. **Forfás is of the view that these programmes should be expanded, on a phased basis, and ultimately be incorporated into mainstream curriculum.**

The high proportion of Irish students currently studying foreign languages, at the end of the second cycle (significantly higher than that in either the UK or the US) is widely attributed to the *National University of Ireland*'s matriculation requirement for Irish *and* a foreign language. However, there is a risk that this pool of capability at second-level might be drastically reduced with any relaxation of this requirement in the future. **Forfás believes it is important that the pool of capability present in the cohort currently taking a foreign language in Senior Cycle should be preserved.**

²⁶ consolidated back-office functions such as HR or treasury within a pan-European multi-national.

²⁷ Soft Skills Development in the Irish Economy, FÁS, 2003.

²⁸ Ahead of the Curve: Ireland's Place in the Global Economy, Forfás, 2004.

²⁹ Languages and Enterprise, *Expert Group on Future Skills Needs*, 2004.

³⁰ Modern Languages in Primary Schools; Post-primary Languages Initiative.

4. Conclusion

There are many stakeholders and vested interests involved in the education system. However, education is fundamentally about the students; they are the principal stakeholder. Therefore the overarching aim of the education system must be to serve their best interests, in the broadest sense. An important dimension to this are the prospects of each individual student to pursue a rewarding, both materially and intellectually, career path upon completion of their studies. Quality of employment and job satisfaction has a huge bearing on the overall quality of life. Consequently, incorporating the views of enterprise into the educational system is in the best interests of students as it maximises their choices of career path. Therefore, **enterprise must be one of the key considerations in policy making for education.**