

LEAVING CERTIFICATE - WHAT'S CHANGED?

Introduction: In examining the results of the 2017 Leaving Certificate, this note seeks to draw attention to change – to change in subject and level choice, to changes in achievement and to the changed grading and points systems.

To illustrate some changes comparison is made with previous years and, in particular, with the Leaving Certificate of 2012 five years earlier.

This note examines the changing trends of the important “universal” subject Mathematics and English and of the compulsory subject Irish. Mathematics, English and Irish contribute about 157,000, 41.5%, of the 377,000 subject entries in the 2017 Leaving Certificate.

The note then examines trends in the Other Subjects from which schools and students make their subject choices.

Reference is made to the 2017 A-Level results in Northern Ireland. There were 30,684 A-level subject entries there in 2017, (down by 3.6% from the 31,828 in 2016), with 17,138 (55.9%) by females and 13,546 (44.1%) by males.

Candidates: In 2017 there were 57,731 Leaving Certificate candidates with the gender parity of 27,886 female candidates and 27,845 male candidates. The candidates have grown from the 52,545 candidates in 2012 when there was also gender parity in participation. Major gender differences however are illustrated below in subject and level choice and in achievement.

The number of candidates is related to participation rates and to the national birth rate about 18 years earlier and to migration rates. In 1999 national births numbered 53,924 up 11.2% from 48,255 in 1994. The sample of Irish students selected to do the PISA 2015 tests were drawn from those born in 1999. That sample contained 14.4% of migrants with 7.3% speaking English at home and 7.1% speaking another language at home.

New Grades and Points System: The Leaving Certificate of 2017 is the first to introduce the new grade system and a new method of points allocation towards selection for Higher Education. The new system has fewer grades and is outlined in Table 1 (with the points distribution in Table 9).

Table 1: New Grades and Points Allocation: (Higher Mathematics H1-H6 earns a 25 point bonus.)

Higher Points	Higher Grades	Exam Score (Old Grades)	Ordinary Grades	Ordinary Points
100	H1	90+% (A1)	O1	56
88	H2	80+% (A2+B1)	O2	46
77	H3	70+% (B2+B3)	O3	37
66	H4	60+% (C1+C2)	O4	28
56	H5	50+% (C3+D1)	O5	20
46	H6	40+% (D2+D3)	O6	12
37	H7	30+%	O7	0
0	H8	<30%	O8	0

The awarding of 37 points for the achievement of marks between 30% and 39% at Higher Level is new and is intended to encourage participation at Higher level. The points allocation is intended to reduce the need for random selection.

This new grade and points system is not without its critics. Some question the wisdom of rewarding with points lower achievement at Higher Level. Doubts are also raised about a system which awards the same points for, say, 40% at Higher Level as for 49% at that level – a mark over 20% higher. Having fewer grades makes it more difficult to discriminate different levels of achievement it is argued.

In England, in 2017, an *increased* number of grades was introduced in GCSE English and Mathematics in order to better discriminate different levels of achievement!

Mathematics: The important subject Mathematics, a key enabler of other disciplines and a strong predictor of success in Higher and Further Education, is the subject with the highest number, 54,665, of examination entries in 2017 at its three levels, Higher, Ordinary and Foundation. Table 2 shows the pattern of entries in 2017 by level and gender and illustrates how that pattern has changed in the past five years by comparing the 2012 pattern.

Table 2: The Changing Pattern of Mathematics Entries: Level and Gender: 2017, 2012.

2017 Male%	2017 Female %	2017 TOTAL	Level	2012 TOTAL	2012 Female%	2012 Male%
52.7%	47.3%	16,395 30.0%	Higher	11,131 22.1%	46.3%	53.7%
48.4%	51.6%	32,334 59.1%	Ordinary	33,916 67.2%	50.7%	49.3%
52.8%	47.2%	5,936 10.9%	Foundation	5,395 10.7%	46.0%	54.0%
50.2%	49.8%	54,665 100.0%	Total	50,442 100.0%	49.2%	50.8%

- ❖ There has been a major increase in the number and proportion doing Higher Level Mathematics. 30.0% took that level in 2017, with major growth from the 22.1% that took Higher level in 2012. In 2017, 28.5% of the females took Higher Level as opposed to 31.5% of the males – a gap of 3.0%.
- ❖ In 2017 15,029 students gained a H6 or higher in Higher Mathematics and so earned the bonus of 25 points. Of these 7968 were male and 7061 female. 907 more males got this bonus. Over a thousand students, 1023, earned points by getting a H7 grade at Higher Level.
- ❖ Each of the top three grades H1, H2 and H3 was achieved by a higher proportion of the male Higher Level candidates than the proportion of the female candidates achieving those grades. In all 38.1% of the males and 34.1% of the females doing Higher Level got a H1, H2 or H3.

- ❖ The proportion taking Ordinary level dropped significantly to 59.1%. Of these, 3,199, about 10%, received a O7 or O8 grade. The Foundation Level, with a smaller male majority, increased its proportion slightly.

The subject Applied Mathematics was taken by 1,969 students in 2017, 74.1% of them male. It was overwhelmingly, 94.9%, taken at Higher Level. Of the males taking this Higher Level 39.9% got a H1 or H2.

In Northern Ireland 3,129 students took Mathematics at A-level in 2017, 55.8% of them male and 44.2% female. Interestingly, the top two grades A and A were achieved by 49.9% of the females and 44.2% of the males. Further Mathematics attracted 199 students there, 139 of them male.*

English: The other important “universal” subject, English, attracted 54,138 entries in 2017. This subject is also an enabler and predictor of success in other disciplines. The changing pattern of English uptake at Leaving Certificate is illustrated in Table 3 which again compares the 2017 pattern with that of 2012 and reveals the gender differences.

Table 3: Changing Pattern of English Entries: 2017, 2012: Level and Gender

2017 Male	2017 Female	2017 TOTAL	Level	2012 TOTAL	2012 Female	2012 Male
45.8%	54.2%	38,749 71.6%	Higher	32,965 65.3%	54.5%	45.5%
61.0%	39.0%	15,389 28.4%	Ordinary	17,552 34.7%	40.7%	59.3%
50.1%	49.8%	54,952 100%	Total	50,517 100%	49.7%	50.3%

- ❖ There has been a major increase from 65.3% to 71.6% in the proportion of students taking the Higher Level in English. More females than males take the Higher Level but the gap has been fairly consistent over the five year period. In 2017 65.4% of the males and 77.8% of the females took Higher Level, a large 12.4% gap.
- ❖ Females also outperformed males at Higher Level at each of the grades H1 to H4. These four grades were achieved by 64.1% of the females and 57.1% of the males. In 2017 937 or 2.4% of the Higher entrants achieved a H7.

In Northern Ireland the A-level subject English Literature was taken by 1,986 students with 1,510 (76.0%) of them female. The highest grades A and A were achieved by 28.5% of the females and by 19.1% of the fewer males.*

Irish Language: The third major subject of the Leaving Certificate is Irish, a compulsory subject which is taught in primary and second level schools. Exemption from the subject can be got through disability or period of foreign residence. In 2017 it had 47,833 subject entries at its three levels Higher, Ordinary and Foundation. The pattern of these entries and the change in pattern in recent years is shown in Table 4. The gap between English and Irish Language examination entries was 7,119 and was slightly bigger in 2012.

- ❖ Table 4 reveals major gender differences and significant changes in the level pattern.
- ❖ The proportion taking Higher Level increased over the last five years from 37.1% to 46.2%. This year the female proportion taking Higher was 55.6%, while the male proportion was 36.5% - a major 19.1% gap. Irish remains the second lowest subject, after Mathematics, for Higher Level uptake.

Table 4: Changing Patterns of Irish Language Entries: 2017, 2012: Level and Gender.

2017 Male	2017 Female	2017 TOTAL	Level	2012 TOTAL	2012 Female	2012 Male
38.5%	61.3%	22,122 46.2%	Higher	15,937 37.1%	63.4%	36.6%
56.3%	43.7%	22,521 47.1%	Ordinary	22,875 53.2%	46.1%	53.9%
67.5%	32.5%	3,190 6.7%	Foundation	4,153 9.7%	32.8%	67.2%
48.8%	51.2%	47,833 100%	Total	42,965 100%	51.2%	48.8%

- ❖ The larger numbers of females taking Higher Level had, in 2017, a higher proportion earning each one of the grades H1, H2, H3, and H4. Of the female Higher Candidates, 74.8% earned those grades while 65.5%, 9.3% less, of the fewer male candidates achieved them. The grade H7 was achieved by 413, representing 1.9% of the Higher candidates.
- ❖ The uptake of Foundation Level has declined significantly. It remains male dominated. Males also dominated the 1,775 students who earned an O7 or O8 grade. Of these 75% or 1332 were male.

In Northern Ireland at A-level 333 students took the Irish language examination in 2017. Two thirds of these, 226 were female.

Discipline Choices: Leaving Certificate subject choices other than Mathematics, English and Irish can be considered under the following Discipline Groups (the number of subjects being included is given in parenthesis): Sciences (5), Other Languages (8), Humanities (4), Business Subjects (4), Arts (2), Engineering/Technology (5) and Home Economics (1).

(The important non-curricular EU languages are not included here in the comparisons. In 2017, 693 took Polish, 357 males and 336 females. Lithuanian was taken by 213 and Romanian by 193. The global language Portuguese was taken by 84.)

Table 5 gives the proportions of discipline choices by gender in 2017. In order to measure recent changes in broad discipline choice the discipline choice pattern by gender is also given for 2012.

Table 5: Discipline Choice by Group: 2017, 2012: Gender

2017 Female	2017 Male	Discipline Group	2012 Female	2012 Male
28.4%	25.6%	Sciences	26.7%	24.0%
21.5%	16.2%	Other Languages	21.3%	15.8%
15.3%	19.2%	Humanities	16.9%	21.1%
13.0%	14.6%	Business Subjects	12.6%	14.1%
9.8%	4.7%	Arts	10.4%	5.6%
2.5%	18.4%	Engineering/Technol.	1.8%	18.0%
9.5%	1.3%	Home Economics	10.2%	1.4%
109,417 (100%)	111,096 (100%)	TOTAL	101,990 (100%)	104,481 (100%)

About 110,000 subject choices were made by males and by females in 2017 confirming the widespread practice of choosing four subjects from these Discipline Groups.

- ❖ There are major differences in the 2017 male and female choice patterns. Females form majorities of those choosing Home Economics, Arts, Other Languages and Sciences. Males dominate Engineering /Technology and form majorities in Humanities and Business Subjects.
- ❖ Within discipline groups there also can be major gender differences. For example, in the Sciences females form a majority, 60.7%, of the dominant Science, Biology, while males form a large majority, 75.2%, of those who took Physics in 2017.

Table 5, by comparing the broad discipline choice in 2012 to that of 2017, points to recent changes in the discipline choice pattern.

- ❖ Languages, Sciences, Business Subjects and Engineering have increased their proportion for both males and females. The largest increase was in the Sciences. (The largest % subject increase was in Spanish, where the numbers doing Higher Level increased by 95.8% - to 4,915 in 2017 – from 2,523 in 2012.)
- ❖ Home Economics, Arts Subjects and Humanities have shown decreases with Humanities showing the biggest decline in proportion.

There have also been significant changes in the proportions in the discipline groups taking the Higher Level examination and Table 6 illustrates that by contrasting the Higher Level uptake in 2012 with that of 2017.

Table 6: Proportions Taking Higher Level by Discipline Group and Gender: 2017, 2013.

2017 Female	2017 Male	Discipline Group	2012 Female	2012 Male
83.0%	77.8%	Sciences	78.5%	74.7%
69.7%	61.3%	Other Languages	60.1%	51.7%
81.7%	76.8%	Humanities	77.6%	73.0%
78.3%	77.3%	Business Subjects	70.8%	71.1%
89.8%	80.1%	Arts	85.8%	75.4%
87.4%	85.1%	Engineering/Technol.	78.4%	79.0%
82.3%	60.7%	Home Economics	75.2%	51.6%
80.0%	76.1%	TOTAL	73.9%	70.7%

Table 6 shows that in 2017 four in every five subjects, 80%, taken by females from the Discipline Groups was taken at Higher Level, rising from 73.9% in 2012. The corresponding figure for males, with their different pattern of subject choice, was less, at 76.1%, rising from 70.7%. Within each discipline group in 2017 a larger proportion of females took the Higher Level. The gap was widest for the small number of males taking Home Economics and in the two Arts Subjects.

- ❖ Between Discipline Groups there is major variation in the percentage taking Higher Level in 2017. In Other Languages, for example, 61.3% of the males took Higher Level while in the Arts almost 90% of the females took Higher Level.
- ❖ Other Languages has, by far, the lowest proportion taking Higher Level. French, its dominant subject, had the third lowest Higher Level uptake at 62.8%, after Mathematics and Irish. In Business subjects both genders took less than 80% at Higher Level in 2017.
- ❖ Every percentage in the 2017 pattern is bigger than the corresponding figure in the 2012 pattern of Higher Level uptake – a major change. The biggest increase was in Other Languages with a 9.6% increase in Higher Level uptake for both females and males. The Business Subject increases were 7.5% for females and 6.2% for males.
- ❖ The overall gap in the gender rates of Higher Level uptake in the Discipline Groups has widened from 3.2% in 2012 to 3.9% in 2017.

At A-level examinations in Northern Ireland in 2017 a range of subject was taken which are not included in the Leaving Certificate programme. They included Computing, ICT, Drama, Law, Media Studies, Performing Arts, Physical Education, Political Studies, Psychology and Sociology. ICT had 1,455 entries and Media Studies had 1,275.

The Major Subjects: While the Discipline Groups offer a wide choice of subjects the reality is that certain subjects dominate the choices made. For example the uptakes of Biology, Geography, French and Business Studies exceed by far the combined uptakes of all the other subjects in their groups.

Table 7 looks at the changes at Higher Level in the uptake of the major subject in each subject group and at the changes in the proportion obtaining H1 or H2 grades compared to those receiving A1, A2 or B1 grades in 2012. It also looks at the proportion gaining H7 grades and thus earning 37 points in the new Points System. These 7 major subjects account for 34.8% of all entries.

Table 7: Major Subjects: Higher Level Uptake: 2017 and Change Since 2012

H7 Grade % 2017	(H1 + H2) % 2017	Higher Entries 2017	Subject	Change from 2012	(A1+A2+B1)% 2012
8.0% (2,130)	21.1%	26,684	Biology	+17.3%	25.2%
4.2% (814)	16.0%	19,294	Geography	-4.2%	15.4%
4.0% (337)	20.3%	15,934	French	+16.1%	22.1%
7.0% (931)	18.6%	13,219	Bus. Studies	+11.7%	18.6%
2.1% (165)	12.6%	7,737	Art	-1.5%	13.1%
4.2% (313)	17.7%	7,451	Construction	+13.3%	16.8%
3.0% (284)	19.4%	9,412	Home Econ.	+9.4%	14.9%
		99,731		+9.0%	

- ❖ Biology shows the strongest recent growth (column 5) at Higher Level amongst the Major Subjects. Its proportion of students getting H1/H2 (or A1/A2/B1) has declined from 25.2% in 2012 to 21.1%, still the largest figure amongst the major subjects. Biology also has a high proportion 8.0% (or 2,130 students) gaining points by achieving a Higher H7.
- ❖ French also grew in the recent period. In 2017 57.8% of its male students and 66.5% of its female students took Higher Level. Its proportion of H1/H2 grades declined to 20.3%.
- ❖ Business Studies Higher entries grew by 11.7% and it maintained its proportion at H1/H2. The H7 level was achieved by 7.0% or 931 students.
- ❖ Home Economics increased Higher entries by 9.4% and its proportion at H1/H2 rose significantly to 19.4%.
- ❖ Geography reduced in Higher numbers and 814 (4.2%) of its students got an H7 grade. Art reduced slightly in uptake. Its H1/H2 rate is the lowest amongst the major subjects.
- ❖ Construction increased by 13.3% and raised its H1/H2 achievers to 17.7%

In Northern Ireland A-level examinations in 2017 the top subjects taken by males were (in order): Mathematics, History, Physics, ICT and Geography. The top subjects for females were (in order) Religious Studies, English Literature, Mathematics, History and Chemistry.

The A-level results in Northern Ireland in 2017 can be compared with results across the UK by looking at the proportions, by gender, who received the highest grades A, A and B. Of females in Northern Ireland 8.7%, 24.6% and 31.1% received those grades respectively compared to 7.8%, 18.3% and 28.3% for females across the UK. Males in Northern Ireland achieved 7.2%, 19.6% and 30.6% at A*, A and B compared to 8.8%, 17.7% and 25.0% across the UK. Apart from males at A*, candidates in Northern Ireland outperform their counterparts across the UK by this measure.*

Leaving Certificate Vocational Programme: Table 8 compares the results of the Link Modules of the LCVP in 2017 and in 2012.

Table 8: Link Modules (LCVP) Results: 2017, 2012

Grade	2012			2017		
	Male	Female	Total	Male	Female	Total
Distinction	525	1,447	1,972	383	1,159	1,542
Merit	3,456	4,697	8,153	3,161	4,634	7,795
Pass	2,628	1,926	4,554	2,295	1,650	3,945
Total Candidates	7,397	8,451	15,848	6,367	7,668	14,035

There were 11.5% fewer candidates for the LCVP link modules in 2017 than in 2012. In 2017 1,542 earned a Distinction, 11.0%, of all the candidates down from 12.4% in 2012. Females dominate those getting Distinction and, in both 2012 and 2017, those earning Merit.

Changes in the Points Distribution: The new Points System brings a new distribution of points for Leaving Certificate students. Table 9 compares the distribution in 2017 with that of 2012.

As one would expect the 2012 distribution has a larger proportion at lower points. Below 300 it had 41.5% as opposed to 38.3% in 2017. A major policy question is whether the present Leaving Certificate arrangements are the most appropriate ones for this 38.3%. The 2017 distribution has 12.2% above 500 with 9.9% above that figure in 2012.

Table 9: Distribution of Points: 2017, 2012

Points 2017	% of Students	Points 2012	% of Students
625	0.3%	600	0.3%
600-624	0.9%	500-599	9.6%
500-599	11.0%	400-499	23.6%
400-499	24.0%	300-399	25.0%
300-399	25.5%	200-299	18.2%
200-299	19.7%	100-199	13.3%
100-199	11.9%	<100	10.0%
<100	6.7%		

CAO Application Patterns: A primary function of the Leaving Certificate programme is to prepare for Higher and Further Education. The Leaving Certificate class of 2017 formed a major portion of the CAO applicants in 2017. CAO applicants may apply at Level 8 (Honours Degree) or at Levels 7/6 (including Ordinary Degrees) or at both levels. In 2017, the CAO received applications from 76,086 applicants, up 6.2% from the 71,648 applicants in 2012. Table 10 shows the pattern of first preference applicants by level in 2017 and 2012.

Table 10: First Preference Applicants by Level: 2017, 2012.

	Level 8	Level 7/6
2017	65,294	34,345
2012	61,845	40,165
% Change	+5.6%	-14.5%

The number of 1st preference applicants at Level 8 increased by 5.6% over the five year period. Remarkably the number of applicants for Level 7/6 courses decreased strongly, by 14.5%, since 2012.

The STEM Education Review Group in November 2016 recommended an upward step change in the provision of STEM education. Table 11 shows the patterns of CAO applications for Level 8 STEM courses.

Table 11: Level 8: STEM Course CAO 1st Preference Applications: 2017, 2012.

Level 8	2012	2017	% Change
Science/Applied Science	8,146	8,503	+4.4%
Agriculture/Horticulture	613	532	-11.2%
Engineering/Technology	5,433	6,838	+25.9%
Architecture	534	756	+41.6%
Built Environment	148	473	+219.5%
Sub Total	14,874	17,102	+15.0%

- ❖ STEM application at Level 8 increased by 15.0% since 2012 and now form 26.2% of all Level 8 applicants as opposed to 24.1% in 2012. Remarkably, STEM applications for Level 6/7 courses declined by 7.5% since 2012.
- ❖ Driving the increase at Level 8 is the increase in Engineering/Technology applicants and also the strengthening of Construction related courses. Remarkably the decline at Level 6/7 is largely driven also by a decline in Engineering/Technology applications at that level.

Table 12 gives further information across a range of disciplines on the changing patterns of CAO 1st preference applications at level 8.

Table 12: Level 8: CAO Applications for Arts/Business/Law/Education: 2017, 2012.

Level 8	2012	2017	% Change
Arts/Social Science	15,698	14,459	-7.9%
Education	4,963	4686	-5.6%
Business/Administration	8,831	11,021	+24.8%
Art/Design	2,485	2,274	-8.5%
Law	2,089	2,694	+29.0%
Sub Total	34,066	35,134	+3.1%

- ❖ Applicants at Level 8 showed major increases In Business/Administration and Law. Arts/Social Sciences, Education and Art/Design show decreases at a time of overall increased applications.
- ❖ At Level 7/6 these disciplines overall showed a major decrease of 21.5% with Arts/Social Sciences at this level declining by 42.2% since 2012.

There remains the Health related disciplines. In the period 2012-2017 CAO applications at level 8 for Human Medicine, Nursing and Pharmacy declined by 12.0%, 6.9% and 14.7% respectively. Overall, Health Related disciplines increased by 1.2%, less than the overall increase in applicants.

Leaving Certificate Applied: The results of the Applied Leaving Certificate in 2017 are compared to that of 2012 in Table 13.

Table 13: Applied Leaving Certificate: 2017, 2012: Gender

Grade	2017			2012		
	Male	Female	Total	Male	Female	Total
Distinction	208	380	588	132	369	501
Merit	788	549	1,337	752	812	1,564
Pass	243	135	378	283	265	548
Record of Credits	287	183	470	197	216	413
Total	1,526	1,247	2,773	1,364	1,662	3,026

- ❖ The numbers doing the Applied leaving Certificate have declined by 8.4% since 2012 but the number of females taking this level has declined by 25%.

- ❖ The proportion getting Distinction have risen from 16.6% in 2012 to 21.1% in 2017. Females form a majority, 64.6%, of those earning Distinction in 2017.

Some Issues: The quality of the Leaving Certificate Programme, its syllabi, teaching, learning, organisation and assessment, is of major national importance. An examination of the 2017 outcomes and participation raises some issues. These include:

- ❖ **Formats:** Of those doing the Leaving Certificate in 2017, 38.3% - almost two in every five – earned less than 300 points. The standard format of the Leaving Certificate is a full-time two year format involving seven subjects. Should other formats be available for some such students e.g. a three year programme (replacing Transition Year), a programme involving some work experience or a programme involving six or five subjects?
- ❖ **Higher Level:** The proportion doing Higher Level in most subjects has increased significantly in recent years. There is variation between subjects in those proportions and in the outcomes. The award of points for H7 grades, whose proportions vary by subject, and its acceptance for admission to Level 8 courses is a further incentive to Higher Level choice. The statements that the minimum entry requirement to Level 8 courses now is two H5 and 4 O6/H7 grades represent a reduction in the minimum standard. The maintenance and monitoring of standards is a major issue.
- ❖ **Gender:** As in all developed countries there is major gender difference in subject and level choice and in subject achievement. Schools are both coeducational and single-sex. Male comparative underachievement, as part of the challenge of underachievement generally, is a major issue.
- ❖ **Diversity;** The increased Leaving Certificate enrolment and participation bring a diversity of abilities and ambitions. In this context the decline in recent years in the Applied Leaving Certificate enrolment, in participation in the Link Modules of the LCVP and in CAO applications for Level 7/6 require explanation.
- ❖ **Irish Language:** The Irish Language is promoted in schools at primary and second level as part of national policy. An examination of the 2017 Leaving Certificate results shows clearly the vast difference in the outcome of that policy for males and females. This requires urgent study.
- ❖ **Common First Year:** In recent years Higher Education Institutions have wisely promoted more common first year programmes to enable later, better informed, specialist subject choices. In this context it is interesting that the Leaving Certificate subject Physics and Chemistry, which enables an introduction of concepts from two disciplines, attracts few students. Is there a case for some more broadly based but rigorous Leaving Certificate subjects?

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