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# **Is the collage arund the korner just de sam? A study of General Literacy and Information Literacy in the year one Horticulture cohort at the Institute of Technology, Blanchardstown**

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## **Abstract**

*This paper examines the issues of general and Information Literacy among first year students at the Institute of Technology Blanchardstown, Dublin, Ireland in the School of Engineering and Computing. It specifically looks at the first year Diploma in Horticulture intake and briefly compares these to other cohorts in the school. It seeks to tentatively establish the percentages of students who are presenting with literacy difficulties. It suggests interventions that may help to remediate the problems for some students and help them fulfil their potential.*

## **Introduction**

There is increasing recognition that many students entering third level education have literacy difficulties. That they present with these difficulties is recognised as multi causal. There are those that have specific learning difficulties such as Dyslexia<sup>1</sup> and Dyspraxia<sup>2</sup>. Consideration can also be given to an increasingly diverse student body with greater representation of mature and non-national entrants who may not have English as a first language: easier access for second level students with a consequent drop in academic abilities and to dropping literacy standards in the wider societal context. Heretofore, it may be argued that third level staffs have viewed literacy as the concern of second level instruction. This viewpoint may be challenged in the light of rapid socio-cultural changes, student profiles and educational research. It ignores the fact that literacy skills develop throughout our lives and should respond to the demands of specific contexts and disciplines. It runs counter to avowed policies of lifelong learning and encouragement of participation in third level education of previously marginalised groups such as those mature students who may have had limited formal academic instruction in the past. Such a viewpoint would also seem to compromise policies of inclusion of ethnic minorities and non-national students in the student body. This paper seeks to analyse the literacy profiles of first year students at the Institute of Technology

Blanchardstown in the school of Informatics and Engineering with a specific focus on the Horticulture cohort for the academic year 2004/2005. Comparisons will be made between students who have followed the traditional leaving certificate entry and those who have taken non-traditional pathways including mature and second chance learners, non-national students who may have English as a second language and Post Leaving Certificate Course (PLC) <sup>3</sup> students.. It will investigate whether there is a mismatch between literacy levels that pertain and the demands of courses at the Institute of Technology Blanchardstown. It will make comparisons with similar studies internationally. There have been no similar studies completed in Ireland to date as far as can be ascertained. Consideration will be given to staff experiences and expectations. Finally, the current academic provision and support system will be reviewed and suggestions made as to how to address any deficiencies identified.

### **Defining literacy**

Definitions of literacy have changed over time in parallel with changes in our society, economy and culture. The growing acceptance of the importance of lifelong learning has expanded views and demands. Literacy is no longer seen as an ability that is developed during the early school years but as an advancing set of skills, knowledge, and strategies those individuals build on throughout their lives in various contexts. These may vary from interaction with their peers to engaging with the larger communities in which they participate.

Historians remind us that the types and levels of literacy skills necessary for economic participation, citizenship, parenting, and individual advancement in 1800 were different from those required by 1900 and from those required in the year 2000 and beyond. We live in a technologically advancing world. Both the number and types of written materials are growing and increasing numbers of citizens are expected to use information from these materials in new and more complex ways.

As Resnick and Resnick (1977) point out, literacy in its earliest form consisted of little more than signing one's name. It was not until much later that fluent oral reading became important, and not until the 20th century that reading to gain information was required. The 2003 National Assessment of Adult Literacy defines literacy as 'using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential'. The revised Irish Primary Curriculum (1999) puts it bluntly: literacy is the ability to read and write. This is our fundamental concern: can third level students read and write well enough to function at this level? While these definitions are clear-cut, literacy is a more complex concept than they allows for.

Literacy is often conceived of as a discrete set of skills and knowledge: something you have or don't have (literate/illiterate) or something that exists on a single scale (degrees of literacy). However research in 'new literacy studies' shows it to be more than a set of decoding skills. Reading and writing are recognized as complex mental operations but also rooted in particular social contexts and purposes. The Irish National Adult Association for Adult Literacy (NALA) <sup>4</sup> literacy as 'the integration of listening, speaking, reading, writing and numeracy' (2004;pg 2) Furthermore, they suggest that it encompasses aspects of personal development: social, economic, and emotional and is concerned with improving self-esteem and building confidence. This conception of literacy goes far beyond mere technical skills of communication. The underlying aim of good literacy practice is to enable people to understand and reflect critically on their life circumstances with a view to exploring new possibilities and initiating constructive change. Similarly, the benchmark study, The International Adult Literacy Survey (IALS), which is described below, views literacy as a particular capacity and mode of behaviour: the ability to understand and employ printed information in daily activities, at home, at work and in the community - to achieve one's goals, and to develop one's knowledge and potential (2002;p. 3).

### **General Literacy in Ireland**

The two most significant studies of Irish literacy have been the OECD's Programme for International Student Assessment (PISA) and the International Adult Literacy Survey (IALS). The PISA assesses 15-year-old students from all members of the OECD countries in prose, documentary and quantitative literacy. In the most recent results for 2000 the only country to outperform Ireland was Finland. The areas of concern: girls substantially outperforming boys and lower performance levels among the lower socio economic groups were common to all countries. The only Irish anomalies were the very low percentage of boys who engage in reading as a hobby and, despite the fact that Ireland had a very good mean score; one in ten has significant literacy difficulties. Ireland was one of the original countries in the IALS finishing a lowly seventeenth of twenty-two. This was central, along with lobbying by NALA and AONTAS, in the appointment of a Minister of State for Adult Education. Denny et al (1999) convincingly argue that the survey did not do justice to Irish literacy standards. The figures were skewed by the lack of access to second level education until the mid 1960s creating 'a cohort effect'.

The OECD statistics (Education at a glance, 2002) show that 31% of those aged between 55 and 64 have completed second- level education compared to 67%of the 25-34 age cohort. Prior to 1966 individuals were obliged to pay fees to attend secondary school. This acted as a

barrier to participation for many. Consequently, the older age cohort has a lower level of educational attainment, which is reflected in a lower level of literacy proficiency. However, the participation rates in education have increased dramatically since the 1970s, which produces a more favourable distribution of literacy scores in the younger cohort in Ireland. The authors effectively demonstrate that the Republic of Ireland, in recent years, has been more efficient in converting years spent at school to literacy levels than the United Kingdom.

### **Literacy at third level**

Literacy within the higher education context is generally thought of in three ways:

1. General competence to express oneself using a standard variety of English suitable to a tertiary level: **Generic Academic Literacy**.
2. The ability to think, speak, read and listen and write well within particular contexts, according to the traditions and usages of particular disciplines: **Discipline Specific Literacy**.
3. The ability to manage and use information effectively: **Information Literacy**.

While the first two conceptions have somewhat different emphases they are interrelated and complementary. The term **Academic Literacy** will be used to encompass both concepts. Academic literacy requires an understanding of the expectations and requirements of a discipline and the development of skills for analysis and communication within that area. Academic disciplines have accepted conventions and methodologies for

1. Text and data acquisition
2. Critical and data analysis
3. Forms of argument and
4. Presentation of communication of information and argument

For a student to meet these expectations they require skills in

1. Critical listening
2. Reading and analysis of text and data and
3. The development of written and spoken skills to develop arguments and the communication of data and text

The development of Academic Literacy needs to be underpinned by traditional or general literacy skills. You cannot have one without the other. The teaching of English is littered with Acronyms: TEFL (Teaching of English as a foreign language): ESL (English as a Second Language): TESOL (Teaching of English to Speakers of Other Languages) and EAP (English

for Academic Purposes). The last is our concern. If a student is academically literate they should be able to engage with discourses appropriate to third level in the areas of thinking, reading, writing and speaking. Additionally they should be aware of the various logical, emotional and personal appeals used in argument and as briefly mentioned above they need skills enabling them to define, summarise, detail, explain, evaluate, compare/contrast and analyse. Ideally an academically literate student has an understanding of audience, tone, language and rhetorical strategies to be successful in various disciplines.

### **Reading skills**

Reading skills can be divided along three axes.

**Prose literacy (PL)** is the comprehension of written text: editorials, news stories, poems and fiction for example, and is broken down into two types: expository and narrative prose. Expository prose is printed information that defines, describes, or informs, such as newspaper stories or written instructions. Narrative prose tells a story. Prose varies in its length, density, and structure (e.g., use of section headings or topic sentences for paragraphs). Prose literacy tasks include locating all the information requested, integrating information from various parts of a passage of text, and writing new related information.

**Document literacy (DL)** is the comprehension of short forms or graphically displayed information. These may be real life situations: job applications, payroll forms, transportation schedules, maps, tables and graphs or in an academic context.

**Quantitative literacy (QL)** is the understanding of information displayed visually, in graphs or charts, or in numerical form using whole numbers, fractions, decimals, percentages or time units. These quantities appeared in both prose and document form. QL involves locating quantities, integrating information from parts of a document, determining and performing the necessary arithmetic operation. Examples are balancing a check book, completing an order form or determining the amount of interest paid on a loan.

### **Writing**

Written work is a fundamental part of third level literacy. It may be used in some format as part of continuous assessment or examinations. These may include essays, business correspondence, synopses and report writing for example. The skills required to complete these include appropriate expression, structure and grammar. Good academic writing is characterised by suitable levels of formality, objectivity, paraphrasing, synthesis, summation, explicitness, referencing and citation. On a more specific level it should be expected that students could describe objects, define, write instructions, describe processes and

developments, classify and categorise, give examples, compare and contrast, evaluate and analyse.

### **Information Literacy**

Information literacy enables a person to recognise when information is needed and to locate, evaluate and effectively use it. It has dominated the research of third level literacy in recent years. A person considered being information literate is able to

1. Recognise a need for information
2. Determine the extent of information required
3. Access the needed information efficiently
4. Evaluate the information and its sources
5. Incorporate selected information into their knowledge base
6. Use information effectively to accomplish a purpose and
7. Classify, store, manipulate and redraft information collected or generated.

Academic library and information centres throughout the world have been evolving for some time into what is described as the 'hybrid library'. This refers to the merging of the old with the new – the books, journals and physical space of the traditional library combined with the vistas opened up by digital technologies and electronic resources. In the 'library without walls' a user can access high-quality information at the drop of a click either from a library computer, their office desktop, remotely from home or anywhere else. Students have greater choice in how, when and where to access information. In theory it should now be easier than ever to locate and access key learning resources. Without the necessary information-handling skills, however, students are in general ill equipped to exploit this amazing array of resources effectively and productively. Recognising this 'information gap', academic libraries now regard the teaching of information skills as an integral part of their mission.

### **Current initiatives in Irish third-level institutions**

All Irish academic libraries offer a variety of 'user education' programmes to students and staff, ranging from the 'library tour' to more specific workshops on research in the library or using electronic resources. These courses are traditionally stand-alone, generic and often unrelated to specific course work. They are usually not compulsory, assessed or evaluated and are very often not uniform or standard across courses or types of students. Even the most supportive academic staff member finds it difficult to allocate precious curriculum class time to library training. Consequently, librarians are often faced with the prospect of trying to

cover everything from basic research skills to complex search strategies across electronic databases in one annual 60-minute session.

However, some interesting work is being done in several Irish academic institutions. University College Dublin's library, in conjunction with the Student Welfare Service and the professor of psychology, has recently acquired HEA funding to support a research project on the teaching of study skills, information-literacy skills and critical-thinking skills to course tutors and demonstrators in the departments of physics, chemistry and psychology. The project aims to show that this type of intervention helps to retain students. The project team are working with the academic departments to integrate these skills into existing curricula, and the methodology proposed is that tutors would be trained to pass these skills on to their respective students. This is seen as possibly more effective and feasible in terms of staff/student ratios.

In Trinity College Dublin, the library and the department of pharmacology have received funding from the Centre for Learning Technology to develop a programme 'using web-based learning to provide B.Sc. (Pharm.) students with the fundamental skills to solve drug-related case-based problems using optimal search strategies'. The library hopes to use the Medicines Information Retrieval (MIR) project as a template on which to model subject-specific information skills courses applied to other academic disciplines.

In Dublin City University a number of the information courses offered by the library are fully embedded in course curricula, are assessed and accredited. A course entitled 'Effective web searching', for example, is delivered as part of an IT module for 150 first-year science students. The learning outcomes for the course were set by the librarians in collaboration with the module co-ordinator. The assessment relates directly to the outcomes, and accounts for approximately 20% of the overall marks for the module. Another course on library research databases is presented as part of a second-year chemistry module entitled 'Visualization & validation of laboratory data'. This too is assessed and accredited. The library is currently reviewing its courses in collaboration with academic staff in order to identify and agree broader information skills learning outcomes.

Both Information literacy and general literacy are essential to third level success. We will now look at the broader canvas of the Irish system and how it may relate to literacy levels.

## **Overview of the Irish third level system**

### **Growth of third level participation**

The OECD report on higher education comments that ‘the growth in tertiary education in Ireland has been extraordinary with the participation rates rising from 11% in 1965 to an estimated 57% in 2003 and in numbers from about 21,000 in 1965 to over 137,000 by 2003’ (Department of Education and Science Ireland).

(type A are degree level course and type B shorter courses leading to a certificate or diploma) are counted together the share of the 25-34 year olds completing tertiary education amounts to 37%, compared to an OECD average of 28%. This is all the more remarkable when the historical context is considered. The completion rate of 14% in the 55 to 64-age cohort compared, for example, to 20% in the United Kingdom while those in the 45 to 64 cohorts had a completion rate of 19% compared to 40% of those in the same cohort in the United Kingdom. By 2002 the corresponding figures were 37% and 31%. It can be extrapolated then that from a position twenty years ago where Ireland had less than half per head of population of that of the United Kingdom attending and achieving tertiary level qualifications it has bypassed it by 6% in 2002. This is a remarkable achievement. It is suggested that Government policy in terms of introducing free education in 1966, the provision of third level places, advantageous demographics and the premium attached to Education in Irish culture have all played their part.

In 2002 36,500 students entered tertiary education through the Central Application Office system of which 90% were in the 17 to 19 age group. The number of full time students rose from 40,616 in 1980 to 123,477 in 2001. The Institutes of Technology accounted for the largest percentage increase. An interesting comparison can be made with the figure of 16,300 who were attending third level in the academic year 1964/5 presented in the landmark publication Report of the Commission on Higher Education (1967).

**Table 2. Population that has attained tertiary education (2002)**

(Percentage, by age group)

	Tertiary Type B					Tertiary Type A and Advanced Research Programme				
	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64	25-64
Ireland	14	10	7	5	10	23	15	12	9	16
Denmark	6	6	5	4	5	23	24	25	18	23
France	17	12	9	6	12	19	11	10	9	12
Germany	8	11	11	10	10	13	15	14	11	13
Sweden	17	18	14	10	15	22	16	17	16	18
Switzerland	10	10	9	7	9	17	17	16	14	16
United Kingdom	8	9	8	7	8	23	18	18	13	19
United States	9	10	10	7	9	31	29	30	26	29
OECD mean	9	8	7	5	8	19	16	14	11	16
EU mean	10	9	7	6	8	17	14	13	10	14

(Source: OECD EAG 2004 Table A3.3)

## Demographics

The proliferation of courses available has provided for a dizzying choice for potential students. Until recent years the demand for all available places was high. This was largely accounted for by demographics. During the 1970s the birth rate was 23 per thousand of population: twice the European average. The HEA forecasts a decline to 13 per thousand by 2016. With the concentration of the entry into tertiary education being predominantly in the 18 to 20 age group (90%), this could lead to a decline in the annual cohort of second level school leavers from around 70,000 in 1990 to around 53,000 by 2015 unless school staying on rates improve considerably. They ambitiously project an increase in the age participation rate to over 66% by 2015. No report to date has mentioned continuing immigration as a possible ameliorating factor.

## Entrance standards

Entrance into third level courses for leaving certificate or standard entrants is based on a points system managed by the Central Application Office. Students are allocated points according to the level and grade they achieve in six subjects in the Leaving Certificate examination or one judged equivalent. With the exception of a handful of courses, that may require interviews or portfolios of work, their success is solely dependant on points achieved. While Prestigious courses like medicine, dentistry, veterinary science and physiotherapy have continued a relentless upwards trend there is an increasing trend of stagnation and in many cases reduction of points required in other areas.

It is the Institutes of Technology who largely take the brunt of these reductions. In recent years many courses now take any qualified applicant (AQA) any others have been cancelled or suspended due to lack of interest or suitable applicants. Blanchardstown is in a fortunate position not having experienced any significant downturn up to this point. This can be seen by comparing similar courses at three Institutes of Technology: Blanchardstown, Tallaght and Letterkenny.

The 2004 figures from the CAO office indicate the minimum standards accepted for Leaving Certificate entrants. They clearly demonstrate the significantly higher entry requirements for ITB. For example computing requires 215 points at ITB, 160 at Tallaght while Letterkenny accepted any qualified applicant.

<b>IT Blanchardstown</b>	
BN001 Electronics and Computer Engineering	240
BN002 Computing & Information Technology	215
BN003 Business Studies	280
BN010 Business and Information Technology	225
<b>Institute of Technology Tallaght</b>	
TA002 Computing	160
TA004 Electronic Engineering	AQA
TA102 Business Studies (Bus Admin)	250
TA108 Business Studies - Marketing	270
TA111 Business Studies (Bar Management)	125
TA504 Engineering - Electro/Mechanical Systems	150
<b>Letterkenny Institute of Technology</b>	
LY003 Business Studies	120
LY011 Mechanical Engineering	AQA
LY012 Computing	AQA
LY039 Electronics & Computer Engineering	185

## **Drop out rates and retention**

The issues of drop out rates and retention have been widely debated in recent times. This is a complex area and while beyond the scope of this work the question can be asked if there is a relationship between drop out rates and literacy levels? Failure-rates in the first years of study in the Institute of Technology sector are high and considerably more than in the universities. They are comparatively high at universities: according to an HEA study of 2001 83.2% obtained the degree on the course on which they had initially embarked and the dropout rate from universities seems to be only 10% (Morgan, Flanagan and Kellaghan 2001). One third of students leave without finishing their courses successfully and failure is highest in the first year of study at certificate and diploma level (EDU/EC (2004) 13).

The low levels of children from lower socio economic groups and mature students attending third level are perennial concerns. The connection between these issues and literacy will be explored.

The following points have been made:

1. There has been a substantial increase in provision and take up of third level places in the last thirty years
2. It has become increasingly less difficult for students to obtain a place at third level in many courses particularly at the IOTs.
3. The IOTs have seen the largest percentage increase in participation
4. The inclusion of students from lower socio economic backgrounds has remained a difficult issue to resolve and of those that come from a low SES the majority attend an IOT
5. There is increasing evidence that the standards required for many Institute of Technology courses are dropping although Blanchardstown has not yet suffered the effects of this
6. Retention and drop out rates are an ongoing concern particularly in the institute of technologies
7. Demographic predictions suggest that with the current provision entrance standards will be further lowered until retention and progression rates from secondary schools are improved
8. There is a relatively poor inclusion rate of mature students in the Irish system.

The following questions have been raised;

1. Are the standards required for entrance to some courses too low causing a mismatch between academic ability and course requirements?
2. Do these lowering entrance levels correlate to lowering literacy standards?
3. Are there, then, students on courses whose literacy level is significantly below that required to be successful at third level?
4. Is it the job of Third level educators to address the issue of literacy?
5. If this is the case what is best practice?
6. What can the Institute do to maximise the student's chances of being retained and successful by helping them with their literacy?
7. What are the resource implications?

### **Assessment of literacy**

The problem with assessing literacy is that the core concepts- learning development and knowing-are largely invisible. All we can see is performance on real tasks. What the tasks should be, how complex, how close to real life and how defined are the real challenges of assessment. Resnick and Resnik (1977) we have to be careful of our notion of what it means to be literate. They also point out that we run the risk of imposing elite standards on the population as a whole and stigmatizing those who do not reach our standards. In this case it is relatively straightforward: Do students have a level of literacy that allows them to successfully complete the course of their choice and to subsequently perform effectively in the workplace.

There are three main ways of assessing literacy: self-assessments, surrogate measures and direct measures or tests. The first is self-explanatory and has been used extensively. Participants are asked questions in a survey format: How well do you read; very well, quite well, poorly or not at all? It is cheap but tends to overestimate literacy levels. It was assumed for many years that, based on such surveys, the literacy level in the United States was close to 90%. When more accurate diagnostic tests were subsequently used it was found to be closer to 50%. Surrogate, or proxy, measurements could include interviewing teachers or lectures or looking at formal exam results or years spent at school. This is also cheap but is not accurate. Direct testing of an individual's literacy competency is preferable when resources permit.

Literacy can be measured in four domains: Academic knowledge tests and complex task and everyday knowledge tests and complex tasks.

**Academic test based knowledge** is measured by multiple choice or other tightly structured questions, answered by a single individual within a timeframe and without assistance. All students are assessed on the same knowledge and skills; tests use the same criteria for judgment, while trying to avoid bias. Learners are compared against set standards-criterion referenced - or each other, norm referenced. The U. S. Department of Education notes that a test is standardized if it is based on a systematic sampling of behavior, has data on reliability and validity, is administered and scored according to specific instructions, and is widely used. A standardized test may be norm-referenced or criterion-based. The tests may, but need not, relate to readability levels, grade level equivalencies, or competency-based measurements.

**Academic complex knowledge and everyday complex knowledge** tasks try to reflect a more holistic view of the individual's abilities. Essays, reports and projects are examples. Both these approaches attempt to measure skills-academic literacy- required to complete tertiary education. They are best carried out and assessed by the same person across the group. Arguably, if done well they are the best measurement of a persons ability to put their literacy and information management skills into practice .

**Everyday knowledge tests** are competency-based and try to reflect the skills and knowledge required in daily literacy practices. They have been used, sometimes controversially, in the USA for thirty years. The first such- the Adult Performance Level (APL) project- was accused of choosing tasks from the perspective of middle-class whites and for developing a long lists of tasks with no rationale. In addition to bias, tests can decontextualise the practices they seek to measure and treat skills and knowledge mechanistically.

The most developed of the competency-based tests, the **IALS (International Adult Literacy Survey)** strives to avoid both a decontextualised and mechanistic approach. It was the first worldwide study to explore the literacy distributions of adults across twenty two participating countries and provided a common measure to allow comparison of literacy proficiency rather than a mere count of the number of “illiterates” The OECD, the European Union and UNESCO administered it between 1994 and 1996 in association with the individual governments. In 2000, a final report was released (Organization for Economic Co-operation and Development [OECD] 2000,Paris) which stated, “*by 1998, the survey had covered 10.3 percent of the world population and 51.6 percent of the world GDP*” (p.87). The IALS reflects both the strengths and the problems with the test approach. It does acknowledge literacy as a complex set of skills and contextualises it in everyday life. In designing the test items an attempt was made to select real life texts such as bus timetables and advertisements. However, the requirements of psychometric testing for standardisation across twenty-two countries made these texts less like their real-life equivalents. For example, a bus timetable

included in the original test was based on an American model, which was very different to other countries. Notwithstanding, it is the best example of a widely used and norm-referenced standardized competency-based approach.

**Methodology of the study of first year horticulture students at Blanchardstown Institute of Technology**

This study attempts to analyse the Literacy levels and Information management skills among first year students at the Institute of Technology Blanchardstown. It seeks to establish a general picture of literacy competencies among Horticulture students and briefly compare the results to the other first year groups within the Department of Informatics and Engineering: Computer Engineering, Computer Science and Mechatronics. Table A shows a breakdown of these groups. These figures represent the number of students who registered at the start of the Academic year 2004/2005. It does not represent the number of students who are on the course now as those figures are difficult to establish. The figures in bold represent the number of students who completed the test. The number of first year computing students who completed the test did not provide a valid sample and were not included.

	<b>Horticulture</b>		<b>Mechatronics</b>		<b>Computer Engineering</b>	
<b>Students</b>	88	<b>64</b>	32	<b>21</b>	19	<b>19</b>
<b>Male</b>	62	<b>42</b>	29	<b>18</b>	17	<b>17</b>
<b>Female</b>	26	<b>22</b>	3	<b>3</b>	2	<b>3</b>
<b>Standard entry</b>	76	<b>44</b>	29	<b>20</b>	15	<b>15</b>
<b>Mature female</b>	13	<b>13</b>	0	<b>0</b>	0	<b>0</b>
<b>Mature male</b>	9	<b>7</b>	3	<b>1</b>	4	<b>4</b>
<b>Non national male</b>	0	<b>0</b>	0	<b>0</b>	4	<b>4</b>
<b>non national female</b>	<b>1</b>	1	0	<b>0</b>	0	<b>0</b>

The make up of the group is significantly different to other courses in the Department of Informatics and Engineering. The number of mature students in the Horticulture course is significantly higher than any of the others with slightly over 25% in this cohort. For example, less than 10% of the mechatronic students are mature students. In this group there is significant variation: retirees, career changers, second chance and access students. It could be said that the group represents the aspired to demographic spread of all courses in the future. The other significant difference is the gender balance. The female cohort is slightly less than

50%. Mechatronics has slightly less than 10%. In comparison to other courses there is a wide geographical spread. It is evident that this is a diverse group of learners.

The method of testing students was twofold: a non-standardised and norm referenced test set by the author and the production of a written report. While recognising the limitations of these tools they do attempt to measure literacy in the four domains outlined above. Ideally it would be desirable to use a standardised test but the cost was prohibitive at this stage. The test attempted to measure abilities in grammar, vocabulary, sentence structure and comprehension. Students were allowed an hour and a half to complete it. Grades were awarded in the same way as all work in the college. The test attempted to measure abilities in grammar, vocabulary, sentence structure and comprehension. Students were allowed an hour and a half to complete it. The test was based on the authors experience; ten years teaching second level English in Ireland, Australia and Japan, eight years teaching English as a foreign language and six years lecturing in communications. Grades were awarded in the same way as other exams in the college. The table shows the numbers who took the test in each demographic and the results obtained.

	Horticulture		Grade A	Grade B	Grade C	Grade D	Grade E or lower
<b>Students</b>	88	<b>64</b>	15	19	17	8	5
<b>Male</b>	62	<b>42</b>	8	12	10	5	4
<b>Female</b>	26	<b>22</b>	7	7	7	3	1
<b>Standard entry</b>	76	<b>44</b>	5	9	15	6	4
	<i>Male 53</i>	<b>34</b>	3	6	2	15	1
	<i>Female 13</i>	<b>10</b>	2	3	7	0	0
<b>Mature female</b>	13	<b>13</b>	6	5	1	2	0
<b>Mature male</b>	9	<b>7</b>	4	1	1	1	0
<b>Non national male</b>	0	<b>0</b>	0	0	0	0	0
<b>non national female</b>	1	<b>1</b>	0	1	0	0	0

The results demonstrate that females significantly outperform males. This is particularly pronounced in the standard entry cohort. It should be noted that a significant number of the standard entrants have progressed through the PLC or FETAC, as it is now called, qualification route. Of the 64 students who took the test six students with significant literacy difficulties were isolated. Four were male and two female. Again it is necessary to emphasise

that these students were not screened for specific learning disabilities. The author was made aware of one student who falls into this category. Grade D was recorded for 8 students: 5 male and 3 female. These students would have very basic literary abilities and would struggle to write coherent answers to exam papers. Heretofore this would be a level where students were unlikely to embark on a third level course. The mature cohort is an extremely literate group. Anecdotal evidence points to a large number of this group having held high-powered jobs before entering this course.

A brief comparison can be made with two other first year groups: mechatronics and engineering.

	<b>Mechatronics</b>		<b>Grade A</b>	<b>Grade B</b>	<b>Grade C</b>	<b>Grade D</b>	<b>Grade E or lower</b>
<b>Students</b>	32	<b>20</b>	2	4	4	5	5
<b>Male</b>	29	<b>18</b>	2	3	4	5	4
<b>Female</b>	3	<b>1</b>	0	1	1	1	0
<b>Standard entry</b>	29	<b>20</b>	2	2	4	5	5
<b>Mature female</b>	0	<b>0</b>	0	0	0	0	0
<b>Mature male</b>	3	<b>1</b>	0	1	0	0	0
<b>Non national male</b>	0	<b>0</b>	0	0	0	0	0
<b>non national female</b>	0	<b>0</b>	0	0	0	0	0

	<b>Engineering</b>		<b>Grade A</b>	<b>Grade B</b>	<b>Grade C</b>	<b>Grade D</b>	<b>Grade E or lower</b>
<b>Students</b>	19	<b>17</b>	8	4	3	2	0
<b>Male</b>	14	<b>13</b>	6	4	1	2	0
<b>Female</b>	4	<b>4</b>	3	1	0	0	0
<b>Standard entry</b>	15	<b>13</b>	5	4	3	1	
<b>Mature female</b>	0	<b>0</b>	0	0	0	0	0
<b>Mature male</b>	3	<b>4</b>	4	0	0	0	0
<b>Non national male</b>	4	<b>4</b>	4	0	0	0	0
<b>non national female</b>	4	<b>0</b>	0	0	0	0	0

The Mechatronics group performed particularly poorly. Perhaps this may be somewhat explained by the sampling or the poor attendance at tutorials. In the tutorials the aspects of grammar tested were extensively practised.

By comparison the Engineering cohort performed very well. There is anecdotal evidence that the mature students in this group had a very motivating effect on this group. There was a palpable sense of competition and earnestness. This was lacking in the Mechatronics group. Attendance was excellent and motivation was high. These qualitative aspects merit further evaluation.

## Report writing

It was explained to students three times that that effective writing is a process as well as product. It is not simply a matter of handing in a completed document. It should contain drafting and redrafting, seeking advice from Lecturers and peers and attendance at tutorials to perfect these skills. It should seek to analyse and synthesise, to evaluate and sift information and draw on both primary and secondary sources.

The marking scheme was as follows:

### Marking scheme for report

Process	25
Proposal	10
Ongoing work	15
Format/structure	15
Body of report	50
Sources used	20
Evaluation	15
Synthesis	15
Use of English	<u>10</u>
<b>Total</b>	<b>100</b>

## Report results

The results of the report followed some of the trends of the test and females outperformed males and mature students were by far the highest achievers. It is a worrying fact that students have even greater difficulties putting together a formal written report. 40% of students showed no ability to engage in the process of writing. Despite the fact that four two-hour tutorials were allocated to research where they could use the Library facilities students were unable or unwilling to engage in Independent learning. We can postulate many reasons why this is so: the human inclination to leave everything to the last minute, laziness or an inability to understand the requirements. It is the author's contention that the continuation of the

terminal examination at second level has a significant role to play. In this regard John Coolahan in his seminal book *Irish Education; History and Structure* (1981) noted that as far back as 1971 the Maduas and Mc Namara report advised the government to include school based tests, oral examinations and other forms of continual assessment in both the Intermediate Certificate (now the Junior Certificate) and Leaving Certificate. Almost thirty-five years later this has not been implemented and the tradition of terminal examinations still survives.

In general students also demonstrated an inability to sift, synthesise, analyse, summarise and apply information sources to the completion of a written document. This lack of Information Literacy is evidenced in an inability to choose an appropriate research topic and to be wholly dependent on the Internet as a source of Information. Despite requests to use books, newspapers, journal articles and so on as secondary sources of information the majority of students see the Internet as the source of all wisdom. In the same vein, despite detailed explanation of the differences between reports and projects many students were unable to provide a report format and despite providing a report title such as *The effects of the Internet on Interpersonal relationships on the ITB Campus* (with the help of the lecturer) ended up producing a document that was essentially a history of the Internet. This inability to respond appropriately to a title combined with poor sentence structure, spelling, inappropriate and limited vocabulary is indeed cause for concern. It was evident in many reports that a significant amount of the body of the report was taken from the Internet with stylistic and grammatical differences between the introduction and the main body. Evidence points to production of reports essays and other modes of assessment that take the form of a mass of undifferentiated text culled from the Internet. It was largely the mature student group who realised that books still exist.

The use of primary sources of information was more encouraging. Conscientious students used one or more sources outlined in lectures: interviews, questionnaires, surveys, participant observation and first hand experience. Others were seemed unable to differentiate between real interviews and those available on the Internet. The significant number of young students involved is evidence of a paradigm shift in this regard. Further research is merited.

## Conclusions

### General Comments

It is of central importance to stress that this study is preliminary and would need to be followed by an extensive standardised test and further tools of assessment. *These is preliminary results indicate a relatively high level of general literacy difficulties among first year students at the Institution of Technology Blanchardstown.* In the above analysis there is a high variation between class groups. While this is a fact based on the test results and analysis of need to be considered. The timetabling of particular class groups may have had a slight distortion. This is particularly so in the Mechatronics group where lecture and tutorials were held between four and six and early Friday morning. This had a knock on effect on attendances. Notwithstanding the poorer attendance the results in this particular group were cause for concern. Almost 50% demonstrated poor literacy standards. This stands in stark contrast to the engineering group where there was a much greater level of attendance and achievement. This class demonstrated a much higher level of motivation. The author contends that where there are mature students, who are nearly always highly motivated, to act as role models for the younger students the standards of achievement rise.

### Specific conclusions

1. This initial study would point to a problem of literacy among first year students. Overall this figure is in the region of 20%. This figure does not however provide figures for specific learning disabilities and is probably adjustable downwards.
2. The problem is most acute among standard entry male students. Across all class cohorts their mean scores were lowest in both the test and report writing. Oral presentation was the only area where their scores were comparable to other groups.
3. Literacy levels are highest in the mature entry female cohort. The standard is slightly lower among the male mature entry cohort.
4. Non-national students have different problems unique to their native language. These include inversion, verb tenses, usage of definite and indefinite articles and prepositions. However 50% show a good standard of literacy.
5. A significant minority of younger students are unwilling or unable to engage in independent learning.

6. There is an overwhelming dependence on the Internet as a source of information. This is exclusively a problem with younger students.

## **Recommendations**

### **1. Pre-entry literacy and learning difficulties screening for mature students and early screening for CAO students**

There is an increasing case for pre- entry literacy testing given the increasingly diverse pathways of entry. Current practise does not allow for this with leaving certificate standard entry students as their success is ringfenced by the points system administered by the Central Application Office and the minimum entry standards specified by the individual institution. However this is not the case with non-standard applicants. It is recommended that all applicants that fall into this category be given a comprehensive qualifying literacy test. The precise structure of this method needs to be worked out collaboratively. The author recommends that it includes a standardised literacy test and an oral interview. The Literacy working group should, in collaboration with interested stakeholders establish a comprehensive set of assessment tools. Under this rubric may fall APELS, portfolios of work, qualitative assessment of literacy whereby they write an essay, for example, in controlled circumstances. Should they not have the standard required they should be redirected elsewhere until their standard is proficient. This should apply to all courses including the foundation certificate as it now stands. The author recognised functional illiteracy in two candidates who had been accepted on this course in the academic year 2001/2002. These students had difficulty from the start and subsequently dropped out. It was suggested to the team that pre entry literacy tests be put in place the following year. This was done and those with profound difficulties were recognised and redirected. It is extremely doubtful if the foundation course can help these students achieve their desired learning outcomes without an intensive programme of one to one tuition as outlined below. It is recommended that the Foundation team liaise with the NALA and ideally have one of their tutors on the interview panel. In the case of direct entry students screening should occur quickly after entry. This would allow appropriate structures and supports to be put in place early in the Academic year and maximise the potential of the students.

2. **Standardisation of entry standards for mature students across the sector.** This is in line with recommendation number 49 of the points system commission. The co-ordination of a nationally recognised and transparent procedure for assessment of mature student applications, providing for flexible entry routes taking into consideration the needs of

non-traditional higher education applicants, including APEL, portfolio presentation interviews, the needs of students with disabilities etc.

- 3. The provision of units of study for credit which students who are deemed to be at risk must take as a prerequisite in first year courses in addition to the current provision.** This could take the form of bridging courses at the start of the first semester for those identified as weak, which would allow all students to start on a relatively similar footing. These would need to be a minimum of two weeks duration. This practice is currently being used for the computer applications section of the module in horticulture entitled Communications and computer applications. This is in line with recommendation number ten from the Report on the Points system which states that access programmes be geared to the needs of the individual student in terms of content, duration (e.g., summer, late autumn or year-long) and provider, based on the following categories: First category – students who achieve just over three hundred points With this level of attainment course options are very limited and exclusion stems from rationing rather than the individuals abilities. Students in this category could be catered for through a system of reserved places with direct entry. This would off set the competitive disadvantage of such students. Second category – students who achieve only minimum matriculation requirements (2 grade Cs and 3 passes) Students in this category are at high risk if they enter without further preparation. These students need a pre-entry preparatory programme as well as reserved places with direct entry. Supports post-entry would not be sufficient. Third category – Students in this category would not have attained minimum matriculation requirement for access to higher education. Such students are the least supported and face very few options. Bridging courses must be a major part of the strategy.

It is recommend that the institute consider running a **pilot course** in line with recommendation number eleven of the commission which states that recommends that the National Office should encourage higher education institutions to set up new types of access courses, of varying content and duration, on a pilot basis. One such development would be to have pilot regional consortia of institutions providing intensive Summer Schools (both top-up and orientation) to targeted students. The report highlights one such scheme. The University of Dundee offers a substantial academic ‘top up’ delivered in an intensive three - month period (June to August). Students are given an intensive programme (9-5 every day), covering study skills together with academic courses that are assessed by course work and examination. Dundee has the statistical evidence to demonstrate that students progressing from this course do as well subsequently as those

entering through the more conventional routes, including those studying in Law, Medicine and Engineering (for a description of the Dundee system see CVCP (1998)).

**4. One to one classes for those particularly at risk**

This is the ideal form of literacy tuition. Literacy is closely bound to self-esteem. It is a private issue and can have profound implications for the individual. Providing one to one tuition affords the individual privacy and help confidence and trust to grow. It is obvious that this is an expensive option

**5. The provision of discipline specific and course specific instruction into curricula in addition to current modules.**

For example, Engineering students would be required to take a module in Technical Communication. This would potentially allow for content knowledge and relevant skills at the same time. It would have the added advantage of equitability, as no student would be singled out as needing remedial instruction. The underpinning philosophy in this approach is that all students need to develop their literacy skills pertaining to the specific discipline that they are studying. For example, focussing on effective, efficient and critical reading skills would enable a better understanding of the content information that is being conveyed in a text entitled *The basics of Electronic Engineering*.

**6. The provision of classes and workshops on literacy skills outside the formal curriculum, which would seek to provide interested students with context free literacy instruction** It is proposed that such classes would put the emphasis on literacy as opposed to study skills. In the specific case of the foundation course where the majority of the participants are likely to have less formal education it is vital to maximise literacy levels if they are to make the transition to undergraduate courses. If it is the policy to accept allcomers it is of central importance that they receive extensive literacy tuition.

**7. A greater emphasis on Information Literacy.**

Institutes should recognise the importance of information-literacy as a key component of academic success, containing a necessary set of transferable skills for life-long learning in the information age. To this end, the concept of the information literate-graduate should be formally integrated into teaching and learning development strategy. Academic libraries should carry out the necessary research to evaluate the resourcing and implementation of information-literacy programmes across undergraduate and post-graduate courses. From this research should emerge a clearly defined implementation plan. Costs should be evaluated and the necessary funding identified. Information literacy courses should be an integral part of all new course design. Librarians should be included

in course boards and course-design teams. Skills mapping techniques should be used to identify the level of student competencies in information literacy skills as a basis for course design. In the short term, faculties should recognise the need to allocate curriculum time to library programmes. Academic and library staff should collaborate to ensure that the programmes on offer are course-related and relevant to immediate student need.

#### **8. Staff assistance**

It is recognised that lecturers within a specific discipline may not have the expertise to embed literacy skills in their specific area. Many would view it as outside their remit and this may be accepted as a valid position. Appropriate staff development opportunities should be provided for those who wish to become more knowledgeable in this area.

#### **9. Redrafting of the current communication modules**

The author is responsible for delivering a number of modules to first year students. Having completed this study deficiencies in the syllabi have been recognised and will be remediated under the upcoming Programmatic review. These changes are outlined below. The author contends that the provision for communications is adequate only in the case of the Computing course (BN002). This cohort have a compulsory modules in *Personal Development* in the first semester and *Communications* in the second semester. This provision is an excellent chance to develop literacy skills. All other courses lag significantly behind. In Horticulture (BN007/8) and Engineering (BN002) students take a half module in communications. However it is unsatisfactory in the Mechatronics course where the module is entitled *Personal Development*, which is offputting, and covers material that would be more appropriately dealt with in workshop format by an acknowledged expert. The module title could be changed to, for example, *Communications and Information studies*. This would arguably appear more interesting to students. It is the authors intention to make changes in the upcoming programmatic review. It is suggested that the library have an input into designing the new syllabus.

#### **10. Involvement of external bodies dealing with literacy.**

There is a wealth of resources and information available from designated bodied like NALA and AONTAS. Linkages should be developed between these the Institute and these bodies to develop appropriate supports.

#### **11. Reevaluation of Leaving Certificate English requirements.**

Current leaving certificate students do not have to achieve a level in English above grade D at ordinary level. This does not represent a sufficient level of competency as indicated

by the IALS to embark on a third level course. It is recommended that the management review this issue and consider one or more of the following options:

- (a) Raise the minimum grade required in English to a C at ordinary level.
- (b) Offer those with a grade D an opportunity to take the two standardised tests outlined above to ascertain their literacy level.

Or

- (c) Make it compulsory for those identified at risk to take one of the modules outlined.

## 12. Literacy profiles

Gaining a literacy profile of a student cohort assists in both targeting those who are at risk and formulating strategies, which aim to meet their needs and those of the entire group. The measures outlined should be used to gain an effective profile.

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### Notes:

1. **Dyslexia** causes difficulties in learning to read, write and spell. Short-term memory, mathematics, concentration, personal organisation and sequencing may also be affected. Dyslexia usually arises from a weakness in the processing of language-based information. Biological in origin, it tends to run in families, but environmental factors also contribute. Dyslexia can occur at any level of intellectual ability. It is not the result of poor motivation, emotional disturbance, sensory impairment or lack of opportunities, but it may occur alongside any of these. Skilled specialist teaching and the use of compensatory strategies can largely overcome the effects of dyslexia.
2. **Dyspraxia** is an impairment or immaturity of the organisation of movement. It is an immaturity in the way that the brain processes information, which results in messages not being properly or fully transmitted. The term Dyspraxia comes from the word praxis, which means 'doing, acting'. Dyspraxia affects the planning of what to do and how to do it. It is associated with problems of perception, language and thought. Dyspraxia is thought to affect up to ten per cent of the population and up to two per cent severely. Males are four times more likely to be affected than females. Dyspraxia sometimes runs in families. Other names for dyspraxia include Developmental Co-ordination Disorder (DCD), Perceptuo-Motor Dysfunction, and Motor Learning Difficulties. It used to be known as Minimal Brain Damage and Clumsy Child Syndrome.
3. **Post Leaving Certificate Courses**  
The Post-Leaving Certificate programme, or Vocational Preparation and Training Programme, was introduced in 1985 to provide appropriate vocational training for young people to bridge the gap between school and work. The programme integrates training for vocational skills in particular disciplines, and the development of general skills necessary in all jobs such as interpersonal skills, adaptability and initiative. It also provides for work experience to give relevance to the skills learned and an appreciation of working life. Post Leaving Certificate courses are full-time, of one and two years duration, and offer integrated general education, vocational training and work experience for those who need further training to enhance their chances of gaining employment. They now fall under the remit of FETAC.
4. **NALA**  
The National Adult Literacy Agency (NALA) was established in 1980 and since 1985 it has received a grant to operate a national office. NALA is a membership organisation with voluntary status, concerned with national co-ordination, training and policy development in adult literacy work in Ireland.