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Education and Training Inspectorate

Report on

Information and Learning Technologies (ILT) in Further Education Colleges in Northern Ireland

CONTENTS

1. INTRODUCTION

In June 2004, the further education colleges in Northern Ireland (NI) completed an on-line questionnaire to provide information on the range and quality of computer infrastructures, networks and communication systems, access to computers, staff skills, and the college's management of the demand for computer use. The questionnaire was a revised version of the British Educational Communications and Technology Agency (BECTa) questionnaire used to gather quantitative information on the state of Information and Learning Technologies (ILT) in further education colleges in England and Wales in 2003. This survey is an extension to the on-line survey undertaken by the Education and Training Inspectorate (ETI) in 2002.

2. SUMMARY OF KEY ISSUES

- A sound and up-to-date infrastructure has been implemented across the further education sector. Almost all colleges report that their college-wide computer network meets current demand, but is working at full capacity.

- There is widespread demand from students for access to ILT resources, but there is some variation in the ability of the colleges to meet the level of demand for access to computers by students.

- Although the use of Virtual Learning Environments (VLEs) to support learning is increasing, it remains insufficient. The pace of impact on teaching and learning of the large scale investment in the technological infrastructure has been slow.

- There is insufficient use of innovative technologies in teaching and learning, such as electronic whiteboards and wireless technology.

- Internet connectivity and bandwidth range from excellent (11) to satisfactory (5). Most of the college-wide networks already in place, are capable of delivering to the students, multi-media rich learning resources and experiences.

- Most full-time staff across the further education sector have good basic information and communication technology (ICT) skills. There is a need, however, for this firm foundation to be built upon with training and support in the pedagogy of blended learning and e-learning.

- Inadequate use is made of ILT to facilitate and support electronic links with key stakeholders, such as business and industry and schools.

- In almost all colleges, all full-time members of teaching staff currently have access to computers. However, no college has yet achieved the exclusive use of a computer for each full-time member of permanent teaching staff.

- The main Internet activities for both staff and students are information gathering and e-mail. It is common practice in only two colleges to use the Internet to support distance learning.

- Access to the Internet is mostly good for students. The key constraint to increased use of the Internet, is the lack of planning and course design to maximise the benefits of web-based learning.

- Access to e-mail, using a personal e-mail address, managed by the college, is good for almost all full-time teaching staff. Access to a similarly managed personal e-mail account is poor for part-time teaching staff and it remains inadequate for full-time students.

- There is a need for the colleges to strengthen the arrangements for the security and monitoring of their computer networks, including the use of the Internet and e-mail by all users.

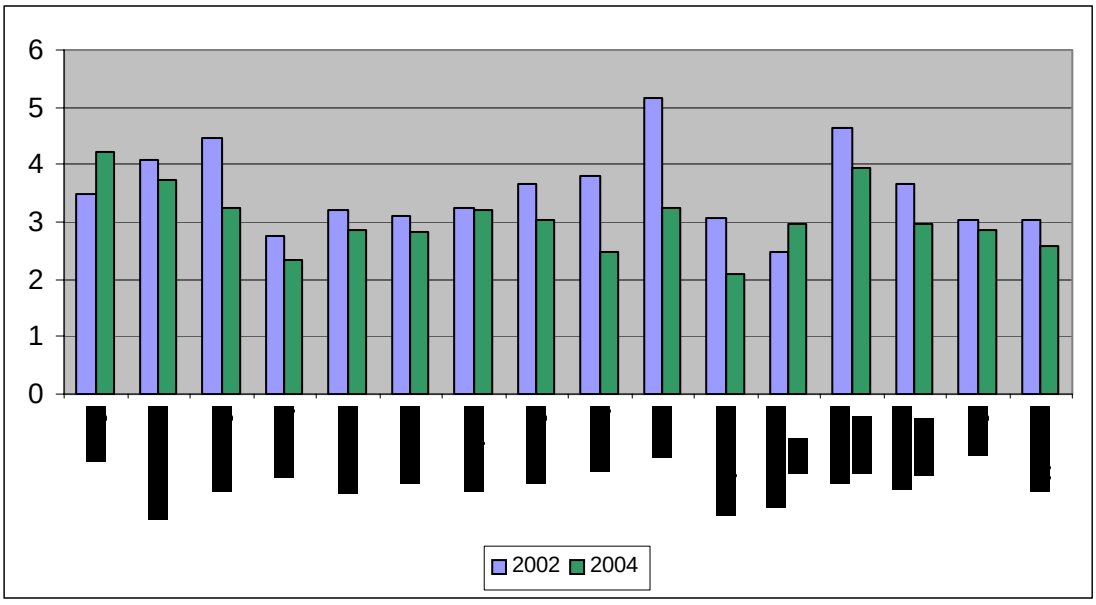
- The use of readily available learning materials, such as those provided by the National Learning Network (NLN), is under-exploited by most of the colleges.

3. MAIN FINDINGS

3.1 Infrastructure

3.1.1 The ratio of networked computers to full-time equivalent (FTE) students ranges from 2.1:1 to 4.2:1 (Figure 1). In ten colleges, the ratio is 3:1 or less. The average ratio of networked computers to net FTE students has improved from 3.6:1 in 2002 to 3:1. There are just under 11,000 networked computers for student use in NI colleges, an increase of around 19% since 2002.

Figure 1: Student Access Ratios

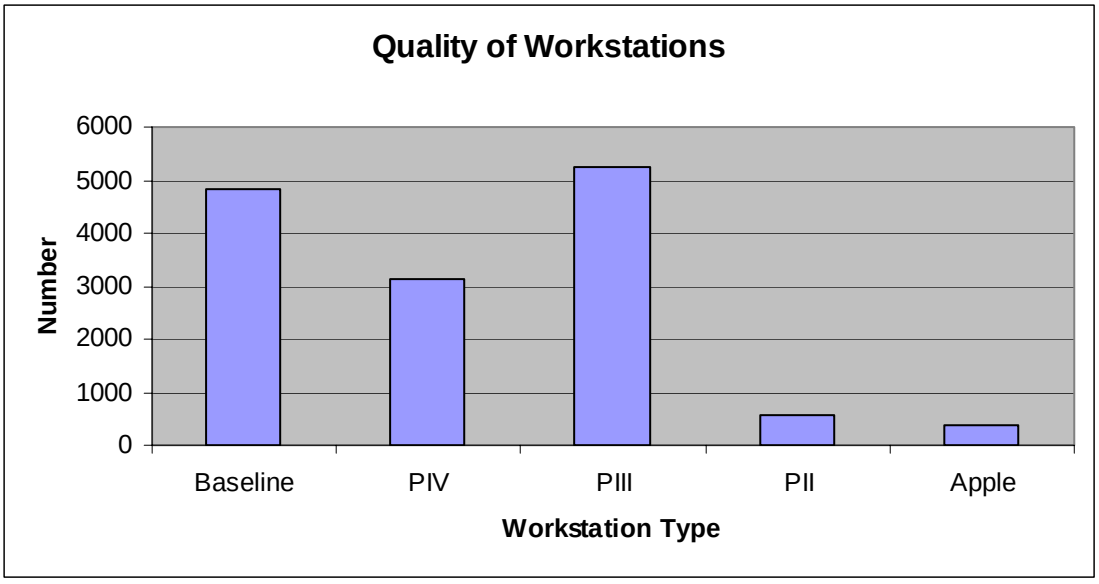


3.1.2 Since 2002, the number of networked computers for the exclusive use of staff, has increased substantially from 1,119 to 1,584 computers; these figures represent an increase of around 40%. The average number of computers per net FTE lecturer has improved slightly from 1.94 computers in 2002, to 1.72.

3.1.3 The number of laptop computers available to staff has improved significantly; 54% of the total computer stock, for the exclusive use of staff, are laptops. There is still some variation across the colleges in the number of net FTE lecturers per laptop computer; the range is 7:1 to almost 1:1; in three colleges, a ratio of just under two laptop computers per net FTE lecturer has been achieved.

3.1.4 The typical baseline specification reported by the colleges is 2.4GHz with 256Mb of RAM and a 40Gb hard disk. The colleges keep their computer stock up-to-date. Across the colleges, an average of 93% of the total computer stock is high specification personal computers (PCs) of at least Pentium III standard (Figure 2). Around one-third of the current installed computer stock is baseline specification standard. In most (13) of the colleges more than 90% of the computing stock meets modern standards; in seven colleges, 95% or more of the stock is up-to-date. In three colleges, 15% or more of the computer stock is dated.

Figure 2: The Quality of Workstations



3.1.5 The performance of college networks is generally good. None of the colleges reports that the slowness or unreliability of their network is a problem. Fourteen state that their network meets current demand but is working at full capacity; most (10) describe their network as working well, although slow at busy times. Only six colleges report that their local area network (LAN) works without any appreciable delay. Almost all of the colleges attempt to control the use of large multimedia files on the network, although one college reports that its network has no problem handling files of this type.

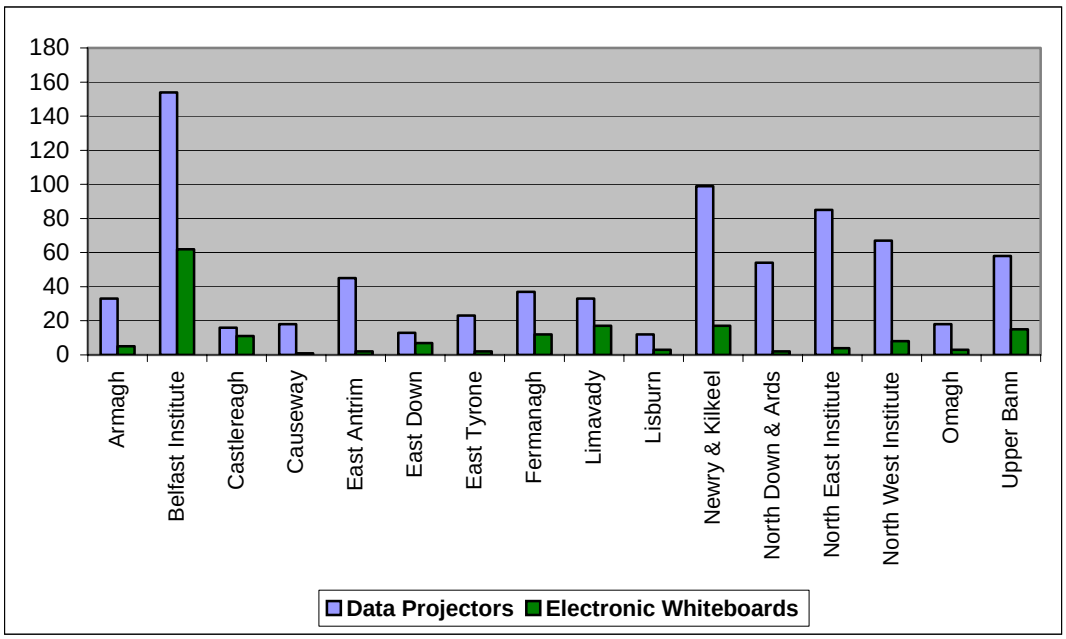
3.1.6 Most (13) colleges have a 100Mbps LAN, with one having a gigabit LAN and one with a gigabit wide area network (WAN). One college still has a LAN bandwidth of 10Mbps, which is inadequate.

3.1.7 Fourteen of the colleges have two or more sites. Leased lines remain the dominant method for connecting sites; there is little use of wireless technologies. Five of the colleges use multiple technologies to connect their sites.

3.1.8 In most colleges, there has been inadequate investment in electronic whiteboard and wireless technology. In one-half of the colleges, there are five or less electronic whiteboards. Across the colleges, the average ratio of net FTE students to electronic whiteboards is 194:1. The ratio varies considerably across the colleges, from 71 to 1,397 net FTE students for each electronic whiteboard.

3.1.9 Over the past two years, there has been a significant investment in data projection equipment, mostly ceiling mounted fixed projectors (Figure 3). The average ratio of net FTE students per data projector is 44:1. Across the colleges, this varies from 22 to 110 net FTE students per data projector. In two colleges, the investment in data projection equipment has been insufficient.

Figure 3: Availability of Electronic Whiteboard and Data Projection Equipment



3.1.10 Internet connectivity is good or better in the majority (11) of the colleges. Since 2002, the majority of colleges (11) have improved significantly their Joint Academic Network (JANET) bandwidth connectivity; two colleges have upgraded to 100Mbps and a further eight have bandwidth of 30Mbps or more. Five colleges are still providing bandwidth of only 2Mbps, which is insufficient.

3.2 Access to ILT

3.2.1 There is widespread demand from students for access to computer resources; the majority (10) of the colleges have sufficient capacity to meet this level of demand. Five colleges, however, report difficulty in meeting the level of demand from students. Only the largest college has sufficient capacity to meet a greater demand for ICT resources. Most (14) colleges report that it can be difficult for students to find a computer at busy times.

3.2.2 There is variation in the ability of colleges to meet the level of demand for access to computers by students. Only two colleges report that all students have unlimited access to computers, at a time and place, that is convenient to them. The majority (11) report that in

their respective colleges all students can access computers, but at limited times or locations. One college still restricts access to the students on certain courses.

3.2.3 The improvement in the access for staff has accompanied a move towards giving each member of staff his or her own designated machine. Four of the colleges report that most staff members currently have their own designated computer. However, sharing a computer in a staff room remains the characteristic mode of access for staff, with 12 colleges reporting that all or most of their staff access computers in this way.

3.2.4 Almost all of the colleges (15) confirm that all members of the full-time teaching staff have access to computers. No college, however, has yet achieved the exclusive use of a computer for each member of its permanent teaching staff.

3.2.5 Access to computers for learning support staff is good; 12 colleges provide all or most of their learning support staff with their own designated computer. In addition, half of the colleges confirm that all or most of their learning support staff can access the college system remotely or from home.

3.2.6 Twelve colleges report that they provide ILT resources to support teaching and learning in out-centres, including community outreach centres. Only 5%, however, of the college's networked computers are located in outreach or Learndirect centres, and almost all connections are by permanent leased lines. Eight colleges are involved in providing and managing Learndirect centres, with an average of 18 networked computers per centre.

3.2.7 The use of ILT to provide and support links with business and industry is under-exploited; only two colleges report electronic connections to business and industry, and these involve only a very small number of computers. None of the colleges provides or uses networked ILT links with schools.

3.2.8 All colleges provide open access, or have a booking system to enable access to ICT facilities for students during weekdays and evenings; in the majority of colleges (12) this provision is free or open access, in the remainder access is managed through a booking system. Since 2002, the number of colleges providing weekend access to ICT resources has increased from three to six. Only one of these, the largest college, provides open access arrangements at weekends.

3.2.9 Access to the Internet is good for students. Half of the colleges report that students are able to get access to the Internet at any time and the remainder states that students can get access, but they may have to wait or reserve a slot at busy times.

3.2.10 Although technical constraints such as access speeds and the number of access points remain significant barriers to increased use of the Internet, the key constraint is the lack of planning and course design to maximise the benefits of web-based learning.

3.2.11 Access to e-mail using a college managed personal e-mail address is good for almost all full-time teaching and learning support staff. In 13 of the colleges, all full-time staff have an e-mail account managed by the college, and in the remaining three, 90% of full-time staff have a college e-mail address. However, in seven of the colleges a small minority of staff still have no access to e-mail.

Access to a personal e-mail account, managed by the college, is poor for part-time teaching and learning support staff; only seven colleges provide e-mail addresses for all their part-time staff and in nine colleges a small minority of part-time staff do not have any access to e-mail.

3.2.12 The provision of college e-mail accounts for full-time students is inadequate; only 10 colleges report that they provide almost all of their full-time students with an e-mail account, managed by the college. In half of the colleges, there is still a small minority of full-time students who have no access to e-mail. The provision of college e-mail accounts remains poor for part-time students. It is unsatisfactory that only two colleges have e-mail accounts for all part-time students. Most part-time students rely on Internet-based or shared e-mail accounts.

3.2.13 The most significant internal use of e-mail and other electronic communications is for communication between management and staff, and between staff in general. Fourteen colleges report that this type of communication is common practice. Although these facilities are used for staff/student communication, only five colleges report that this is common practice.

3.2.14 All colleges report that they have in place a college-wide policy on the acceptable use of electronic communications. In addition, all of the colleges include acceptable use of electronic communications as part of the induction process. Although one-quarter of the colleges report that they have to deal with incidents of inappropriate use of electronic communications every term, it is common practice in only nine of them, to use monitoring software to monitor Internet and e-mail activities. Detection by the learning resources staff and by electronic means are the two main sources of information regarding inappropriate use of electronic communications, in the majority of colleges.

3.3 **Staff Skills**

3.3.1 The colleges report that most full-time staff have completed a level 2 ICT competence award, an improvement from the position in 2002; in nine colleges, around 10% of full-time staff have yet to complete the level 2 award. Across the colleges, an average of 20% of full-time staff have completed a level 3 ICT competence award and an average of 10% of full-time staff are ICT competent above level 3.

3.3.2 Since 2002, the majority (10) of the colleges have provided improved levels of training for part-time staff in the use of ICT to support teaching and learning. The provision of training for part-time staff varies across the colleges, with an average of 32% of part-time staff having completed an ICT award at level 2 or above.

3.3.3 The colleges report that the ILT skills, which members of staff most need to acquire, are: the effective use of a VLE to support learning; the content, authoring and publishing of teaching and learning materials; the pedagogy of blended learning; and the use of electronic whiteboards in teaching and learning. Most colleges regard the further embedding of ILT into teaching and learning repertoires as a key development need.

3.3.4 All of the colleges have designated ILT Champions. The number of ILT Champions per net FTE lecturer varies from 1:57 to 1:11. Across the colleges, there is an average of one ILT Champion for every 21 net FTE lecturers. In most (13) colleges, the ILT Champions have cross-college responsibilities for the promotion and support of ILT in teaching and

learning; in the remaining colleges, they work within specific curriculum areas or departments.

3.3.5 The ILT Champions in almost all (15) colleges are given some remission, typically between one and five hours per week, to undertake their duties. All of the colleges report that the key roles of the ILT Champions are the training and support of staff.

3.3.6 Eleven colleges report that some staff members participate in the Further Education Resources for Learning (FERL) Practitioners' Programme. The number of staff undertaking modules from the FERL Practitioners' Programme, however, remains small and only a few have completed successfully any of the modules (Table 1).

Table 1: FERL Practitioners' Programme Participation

	Number of Colleges	Number of Staff Completing	Number of Staff Completed
Using ILT with Learners	7	53	19
Assisting and Supporting Staff to use ILT with Learners	6	37	11
Making ILT Happen in Teaching and Learning	4	31	11
Learning On-line	3	21	0
Contribution of Technical Staff to Teaching and Learning	3	21	0

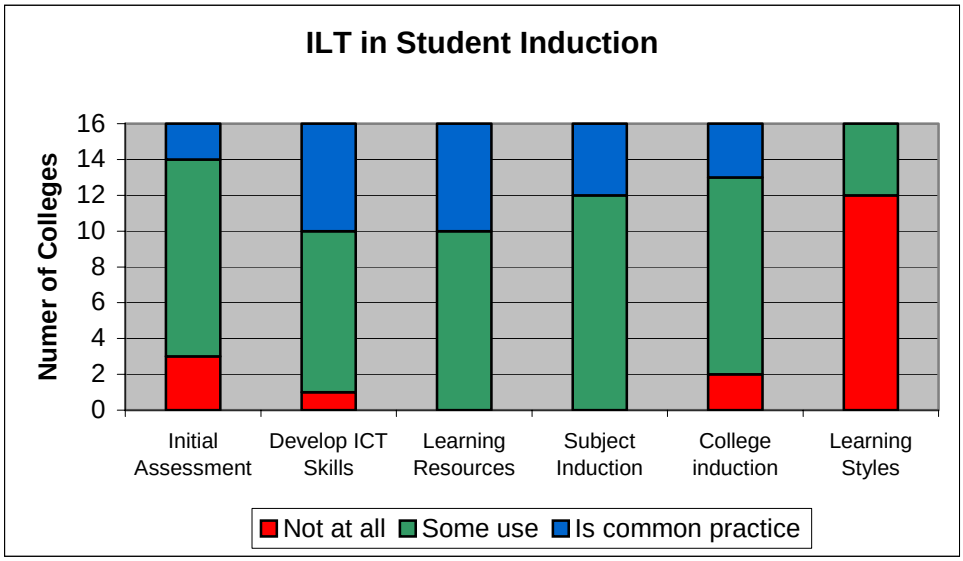
3.4 Use of ILT for Learning and Teaching

3.4.1 The majority (12) of the colleges include in the college development plan, formal targets for the use of ILT. Fourteen colleges report the use of formal targets for the use of ILT across all departments; only two colleges do not set targets for the use of ILT in teaching and learning. Twelve colleges state that course teams evaluate the use of ILT in supporting teaching and learning as part of the course review process. The evidence from recent inspections shows that the quality of the evaluations varies greatly. All colleges report that they have a working ILT strategy document.

3.4.2 The use of VLEs as a learning platform is increasing in colleges; six of them stated that a VLE is the main ILT software learning platform used to support the students' learning, with three of them using Blackboard. The majority (10) of colleges continue to use a local intranet for the storage of information and its dissemination across the network, and to support on-line learning.

3.4.3 Although the colleges make some use of ILT to support student induction activities, this is common practice in only a minority of the colleges (Figure 4).

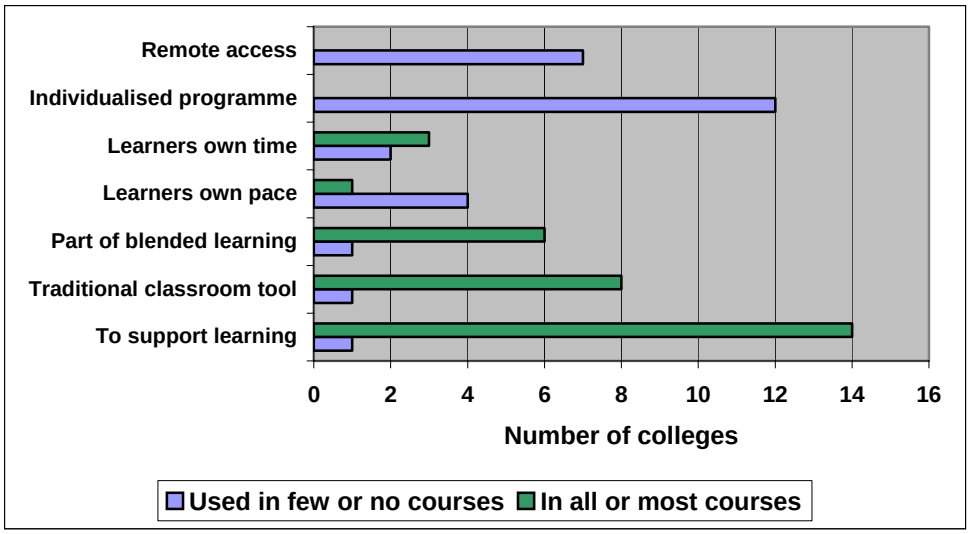
Figure 4: ILT to Support Student Induction



3.4.4 In the majority (9) of the colleges, learning materials are used most often at the discretion of the individual teacher. There is a college-wide plan for the use of learning materials in only two colleges.

3.4.5 The predominant use of ILT in mainstream college courses is to support learning; this type of activity often takes place outside of formal classes. The use of ILT as a normal classroom tool is widespread in one-half of the colleges; the use of ILT with traditional learning resources to produce blended learning is widespread in six colleges (Figure 5). Information and learning technology is least used by the colleges to provide remote access to learning, or to produce individualised programmes of study.

Figure 5: Use of ILT in Mainstream College Courses



3.4.6 The Internet is the most frequently used source of learning materials in the majority (11) of the colleges. While all the colleges report that they make some use of the NLN materials, only two of them describe their use as common practice. Five colleges place a

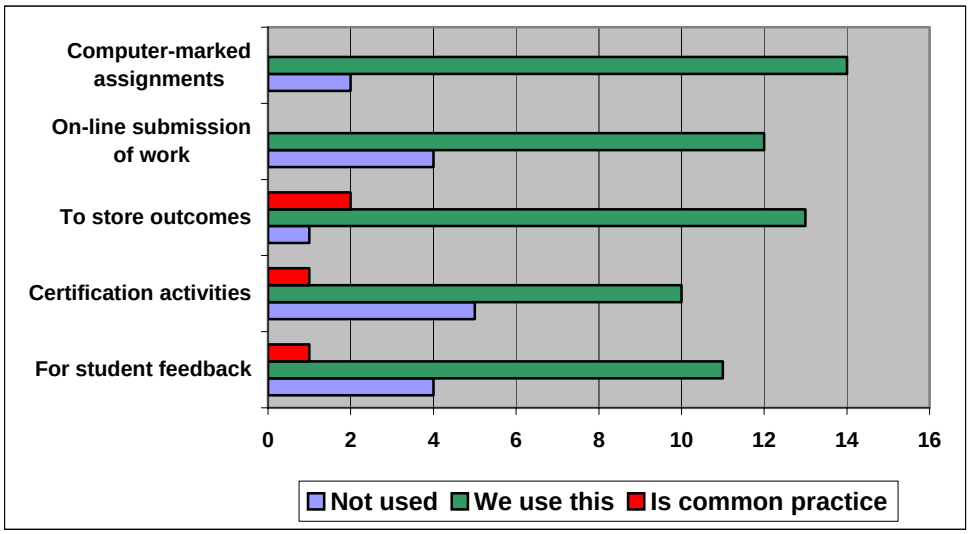
high priority on the development of in-house learning materials. Two colleges make use of Learndirect materials with mainstream students and a further three report some use of the Further Education National Consortium (FENC) materials.

3.4.7 The main uses of the Internet by members of staff are information gathering and e-mail. The use of the Internet by staff as an information resource is commonplace in 13 of the colleges, and in 14 of them, the staff make use of the Internet for e-mail. Fourteen colleges also report that the staff members use the Internet to support distance learning, although it is common practice in only two of them. The use of the Internet by students follows a similar pattern.

3.4.8 Fourteen colleges provide some support for staff who wish to develop or adapt electronic learning materials; seven colleges provide this support mainly through the ILT Champions, five offer specific staff development programmes, and in four colleges the technical staff provides one-to-one support.

3.4.9 On-line assessment is regarded as insignificant or its use is limited to interested individuals in one-half of the colleges. In the remaining colleges, the use of on-line assessment is limited to certain courses, such as the CISCO and Microsoft programmes. The most extensive use of ILT in assessment practice is to store and record the outcomes of assessment, although even this use is common practice in only two colleges (Figure 6).

Figure 6: On-line Assessment Activities



APPENDIX 1

ICT/ILT Funding 1999- 2004

1999/00	Capital	£1,499,900.00
1999/00	Additional Capital	£287,077.00
1999/00	Staff Development	£459,280.00
Total		**£2,246,257.00**
2000/01	Capital	£3,000,200.00
2000/01	Staff Development	£500,607.99
Total		**£3,500,807.99**
2001/02	Capital	£2,898,700.00 *
2001/02	Staff Development	£500,000.00 *
Total		**£3,398,700.00**
2002/03	Capital	£2,000,000.00
2002/03	Staff Development	£400,000.00
2002/03	Additional Capital	£600,000.00
Total		**£3,000,000.00**
2003/04	Capital	£2,000,000.00
2003/04	Staff Development	£400,000.00
Total		**£2,400,000.00**
Overall Allocation		**£14,545,764.99**

*** ICT funding withheld from NIHCC 2001/2002.**

Total capital funding for the remaining colleges was £2,852,000
Total staff development funding for the remaining colleges was £492,800
Total ILT funding 2001/2002 for the remaining colleges was £3,344,800

APPENDIX 2

FURTHER EDUCATION FUNDING FOR ILT 2000 - 2004		
COLLEGE	**Total ILT Capital Equipment Funding**	**Total ILT Staff Development Funding**
ARMAGH	£381,125	£62,516.89
BIFHE	£2,345,805	£417,271.36
CASTLEREAGH	£306,895	£57,694.46
CAUSEWAY	£381,466	£67,807.76
EAST ANTRIM	£471,582	£85,462.20
EAST DOWN	£400,264	£71,856.11
EAST TYRONE	£337,090	£68,572.74
FERMANAGH	£433,315	£81,439.63
LIMAVADY	£345,576	£61,813.55
LISBURN	£390,484	£72,525.43
NEWRY & KILKEEL	£619,422	£111,433.33
NORTH DOWN & ARDS	£733,156	£129,674.39
NORTH EAST	£717,472	£127,311.35
NORTH WEST	£1,066,584	£213,399.71
OMAGH	£319,469	£60,298.83
UPPER BANN	£563,773	£98,739.60
TOTAL	**£9,813,478**	**£1,787,817.34**

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