

**THE APPLICATION OF E-LEARNING MATERIALS TO  
TEACHING AND LEARNING IN POST-COMPULSORY  
EDUCATION IN THE WEST MIDLANDS**  
Implications for the pedagogy of e-learning materials

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## **Chapter 6**

### **Findings: The Main Issues Related to the Application of E-learning Materials Used in Post-compulsory Education**

#### **6.1 Introduction**

The aim of this chapter is to present the findings on the main issues related to the application of e-learning materials used in post-compulsory education. As pointed out in Section 4.1, findings from this chapter and those which had been discussed in Chapter 4 and 5, are based on evidence from the semi-structured interviews on the application of e-learning materials to teaching and learning.

This chapter is structured as follows: Section 6.2 investigates how the teaching staff deal with variation in learners' ability to use e-learning materials and ICT related technology; Section 6.3 highlights the problems in delivering the e-learning materials in FE colleges; while Section 6.4 examines how is e-learning organised in FE colleges in terms of staffing, sources of funding and the colleges' ICT strategies. Section 6.5 discusses the colleges' involvement with outside organisations with regards to ICT use in teaching and learning; Section 6.6 focuses on the colleges' current key development issues; Section 6.7 outlines the colleges' future plans for ICT use; while Section 6.8 concludes the overall presentation of Chapter 6.

## **6.2 How the Teaching Staff Deal with Variation in Learners' Ability to Use E-learning Materials and ICT Related Technology**

This section will investigate how the teaching staff deal with variation in learners' ability to use e-learning materials and ICT related technology in the selected FE colleges. Based on the interview results, it was found that the perception of staff was that there was no significant difference in terms of the learners' ability to use the e-learning materials and related software and hardware. All of them were able to use computers and software for learning as indicated by the Head of Modern Foreign Languages from College E. According to the Head of Physical Education from the same college it was predominantly the staff who used the e-learning materials for their classroom teaching (less so the students) and it was also the tutors who introduced the software for the students to analyse their own performance e.g. Athlete Viewer which allowed students to video their performance and to save it as movies.

It is important to note that IT is a Key Skills subject for most courses in FE colleges; which stressed the importance of acquiring ICT skills from the very beginning. Apart from Key Skills, IT was a compulsory subject for a lot of students. For certain courses which did not include IT as a compulsory subject, the college would make an arrangement for the students to attend induction sessions on the use of IT and learning resources, as indicated by the ICT Services Manager from College I and the ILT Coordinator/Head of English from College B. The induction sessions would enable students to get ICT training based on their personal needs. Although most of the FE colleges did not provide specific training programs for their students, they would normally ensure that their students attended the IT Key Skills courses.



Apart from providing IT Key Skills courses and induction sessions to students, there were many other approaches taken by the teaching staff in dealing with variation in learners' ability to use e-learning materials and ICT related technology. According to the Head of English/ILT Coordinator from College E, as a college, they normally assessed the students' ICT skills when they first came in to enrol for their courses. Students, who did not have the Level 2 qualification in IT, for example, would have to take the Key Skills Level 2. In this way, it would help them raising the students' IT level across the college. In some cases, the students were more knowledgeable than the teachers (with regards to using certain hardware for classroom teaching) but in other cases, there were plenty of students who do not know how to use the more specialist programmes relating to e-learning materials. As for the mature learners they found the use of ICT more difficult as they had had less experience than younger learners.

The Vice Principal for Curriculum and Quality from College A on the other hand revealed that they used the Internet to overcome the variation in learners' ability to use e-learning materials. Other than that they have Microsoft Tutorials to support the basic skills in using the software packages. According to him, most of the students came along with a reasonable IT skills level and it was the mature students who experienced some difficulties as they preferred the traditional learning more compared to e-learning.

The Head of Sociology/ILT Champion from College B in turn, suggested that tutors should recommend their students to use different learning materials, instead of always using the same learning resources. She observed that some learners preferred not to work on their own (outside classrooms) which in her opinion shouldn't be the case as software and other learning materials are neither hard to use nor complicated.



The E-learning Manager from College C suggested that tutors needed to plan differentiated activities to help the affected students as one way of dealing with variation in the learners' ability to use e-learning materials and ICT related technology. So for instance, if the students *cannot use* or *do not like to use* computers, the tutors have to plan for other activities to achieve similar outcomes. Recognising the importance of computers in the teaching and learning environment the FE colleges were trying to improve the students' ICT competence level by encouraging them to use computers in every aspect of their own personal communications.

Another approach taken by the FE colleges to deal with variation in learners' ability to use e-learning materials and ICT related technology was to write specific materials for learners with difficulties as indicated by the ILT Manager from College H. He noted that this approach alone would not end the problems and stressed that, at the end of the day it was up to the individual tutors to apply the best approach or solution to deal with variation in their learners' ability to use e-learning materials and ICT related technology.

Despite the prevalence of variation in learners' ability to use e-learning materials, evidence from the interviews has suggested that most tutors had a reasonable level of ability to use ICT as indicated by the ILT Coordinator from College F. According to him he would only give students what they were capable of using and further argued that the point is not to use software or computers, but to learn something from using ICT in the curriculum areas.

It was noted from the interviews that some tutors were quite experienced in handling students with different levels of ICT capabilities. According to the ILT Champion from College G, as a college they sometimes put the students into appropriate classes (Key Skills at various level) if they have to. At the same time they used the strategy of peer group support which he claimed, worked very well. The strategy of peer group support refers to a situation where the *more experienced* learners assist the *inexperienced* and the *less experienced* ones and he used the same technique when he delivered IT courses for the tutors. Accordingly tutors, who had experienced the strategy of peer group support, could then use the technique in their own classrooms.

The most significant issues in this section are:

- The teachers perceived that there was no significant difference in terms of the learners' ability to use e-learning materials and ICT related technology.
- IT is a Key Skills subject for most courses in FE colleges. Most of the colleges did not provide specific training program for ICT but they would normally ensure that their students attended the IT Key Skills courses.
- Most tutors had a reasonable level of ICT skills and some of them were quite experienced with handling students with different levels of ICT capabilities.
- Most students came along with a reasonable IT skills level and it was the mature students who experienced some difficulties as they preferred the traditional learning compared to e-learning.

- Different approaches were taken by the teaching staff to deal with any variation in learners' ability to use e-learning materials and ICT related technology.

So in term of variations in the learners' ability to use e-learning materials and ICT related technology, we can say that the main barriers to the uptake of ICT by teachers in the classrooms (Becta, 2004) are not so relevant here as evident by point 1, 3, 4 and 5.

In contrast the Principle 2 (Inclusion) of the Becta's Ten Pedagogic Principles for E-learning (Anderson and McCormick, 2005: p1) is relevant here:

The pedagogy should support inclusive practice seen in terms of different types and range of achievement (including special needs); physical disabilities that can be particularly supported by e-learning (e.g. those with visual impairment); different social and ethnic groups; and gender.

With regards to the Principle 2 above, students' potential lack of ICT skills is an inclusion issue since some of them will be less able to access learning as a result of previous experience or socio-cultural factors such as the availability of computers at home, parental support etc. However it was noted from this study that Principle 2 was well observed by the tutors in FE colleges. Different approaches were taken by the tutors to deal with the variation in learners' ability to use e-learning materials and ICT related technology (to support the inclusive practice) which include the following:

- IT was a Key Skills subject for most courses in FE colleges and it was also a compulsory subject for a lot of students.



- The students' ICT skills were normally assessed when they first came in to enrol for courses, then they were put into appropriate classes (Key Skill at various level) to increase their IT qualification.
- Tutors were asked to plan differentiated activities to help the affected students (other activities which will achieve similar learning outcomes).
- Students were encouraged to use computers in every aspects of their own personal communication.
- Some tutors wrote specific e-learning materials for learners with difficulties.
- Some tutors used the strategy of peer group support, where the more experienced learners assist the inexperienced and the less experienced ones.

### **6.3 The Problems in Delivering E-learning Materials in FE Colleges**

The aim of this section is to highlight the problems faced by the teaching staff in the delivery of e-learning materials in FE colleges. Based on the interview results, it was revealed that all the FE colleges indicated that they do have problems in delivering e-learning materials but insisted that *no major problems exist*. The most common problems were those they considered as *limited technical problems*: problems of accessing e-learning resources from home; system failures; networks going down; and problems of incompatibility (if the learning materials are not standard-based to the VLE system). There was also the problem of easy access to the computer room as indicated by one respondent. Please refer to Table 6.1 which listed the tutors' problems to deliver e-learning materials in FE colleges.

The Vice Principal for Curriculum and Quality from College A, confirmed that they have minor problems in delivering e-learning materials but no major problems experienced so far since they have technical supports from the Software and the System Developers to carry out maintenance on the Blackboard and other systems. The ILT Coordinator/Head of English from College B on the other hand, indicated that as a college they received a very good internal support from their well-trained technicians who were always available when limited technical problems did occur. She also confirmed that they received *good funding* from the college’s Principal to deliver e-learning materials across the college.

**Table 6.1** Do you encounter any problems in the delivery of the e-learning materials?

College A	Yes, technical hitches now and again. No major problems.
College B	Yes, limited technical problems.
College C	Yes, some technical problems now and again. Problem of accessing from home sometimes.
College D	Yes, problems of incompatibility sometimes. Not all materials produced by suppliers are compatible with the WebCT
College E	Yes, problem of easy access to the computer’s equipment room. No major problems exist.
College F	Yes, problems of incompatibility if the learning materials are not standard-based.
College G	Yes, very rarely. Some network problems (system down)
College H	Yes, problems of system failure. (network goes down)
College I	Yes, used to be the problems of accessing the resources from home. In the college there isn’t much problems.

Note: The above data were extracted from the results of the semi-structured interview survey.

The E-learning Manager from College C agreed with the statement that *everybody experienced some technical problems, now and again*. He indicated however that in general the network system and the software were reliable, as such there wasn't any problem in delivering e-learning materials across the college. He added that although there was an issue of accessing the e-learning resources from home, it was because of the students' own limited bandwidth.

The ILT Development Manager from College D in turn, highlighted the problems of incompatibility, (WebCT) since not all the materials produced by the suppliers were compatible with the college's network system. When these problems do occur, they have to modify the materials but there are times when the materials just could not work. The ILT Coordinator from College F who experienced the same problems argued that:

there were always problems if the materials are not standard-based.

The ILT Champion from College G on the other hand indicated that it was very rare for them to encounter problems in delivering e-learning materials. According to him if they do have problems, it would be some network problems. If the network system fails, he would immediately inform the System Manager, who would quickly resolve the problems. Experiencing an almost similar situation was the ILT Manager from College H who gave an indication that the only problem that they have was system failures. According to him:

If there was system failure in the college and if you planned the lessons to use the VLE, you would definitely end up with problems.



Contrary to the above, the Head of English/ILT Coordinator from College E indicated that they have problems of easy access to the computer room, despite having enough computers for most students. She however insisted that, there were only minor problems and they have yet to encounter *real problems* in the delivery of e-learning materials in the college.

The ICT Services Manager from College I highlighted the problems of accessing the resources from home, as not all students have computers to access the e-learning materials. He however confirmed that in college, they have sufficient numbers of computers to cater for the students' needs.

The most significant issues in this section are:

- All the respondents indicated that they do have limited technical problems in the delivery of e-learning materials but insisted that no major problems exist.
- The most common problems faced by the tutors in the delivery of e-learning materials were:
  - Problems of accessing the e-learning resources from home.
  - Problems of system failure.
  - Network-related problems
  - Problems of incompatibility if the materials are not standard based.
  - Problems of easy access to the computer room.

The point here is that even the problems above might affect teachers' acceptance of ICT as some of these issues have been identified as producing barriers. Becta (2004) identified seven main barriers to the uptake of ICT by teachers in the classrooms: the lack of teachers' confidence and teachers' computer anxiety; the lack of teachers' competence; the lack of access to resources; the lack of time; technical-related problems; the resistance to change and negative attitudes; and no perception of benefits issue.

We noted that the third and the fifth barriers matched with the most common problems faced by the tutors to deliver e-learning materials in their colleges. As for the rest of the barriers, they did not seem to be the factors which prevent tutors from making full use of ICT in their work. In relation to the third barrier to ICT use (the lack of access to resources) it was found that:

those schools, which were well resourced in ICT, tended to have better achievements than schools with unsatisfactory levels of ICT.

Becta (2004: p11)

On this issue, only one college (College E) indicated that they have problems of easy access to the computer room; despite having enough computers for most students. This was however only minor problems faced by them in the delivery of e-learning materials in their college. As such we can say that all the FE colleges under studied were well equipped with the ICT infrastructures which include hardware, software and network system.

The fifth barrier to ICT use on the other hand, is connected with the technical-related problems: fear of things going wrong and lack of technical support. According to Becta (2004: p16):

there is a close relationship between these two technical barriers: the more frequently that actual breakdowns occur, perhaps due to the lack of preventative technical maintenance, the more likely teachers are to avoid using the technology in the first place.

However based on the research findings there were no major technical-related problems faced by the tutors in the delivery of e-learning materials in FE colleges, what they had is what they considered as limited technical problems.

#### **6.4 How is E-learning Organised in FE Colleges in terms of Staffing, Sources of Funding, and the Colleges' ICT Strategy?**

This section will examine how e-learning is organised in FE colleges in terms of staffing, sources of funding and the colleges' ICT strategy. Based on the interview results, it was found that most of the FE colleges have a level of staff coordinating the e-learning facilities. These people were assigned specific tasks, and allocated a certain amount of hours to dedicate themselves towards ICT development in the college. They were also responsible for the development in staff teaching materials and to monitor the dissemination of results and good practice in using e-learning materials in teaching and learning across the college (as highlighted by the E-learning Manager from College C). It was noted that the majority of the FE colleges has ILT Coordinators and ILT Champions to develop and promote the use of e-learning materials. Apart from the ILT Coordinators and the ILT Champions, the System Manager, the E-learning Manager, the



ILT Development Manager, the Technical Services Manager, the ILT Manager, the ICT Services Manager and Developers were considered crucial to the overall implementation of delivering e-learning materials in FE colleges.

The Vice Principal for Curriculum and Quality from College A, on the other hand indicated that they have an E-learning Team, which promoted the use of different applications across the college. According to him the E-learning Team worked with the Program Team to encourage more people to use any type of learning applications which include the use of digital cameras and video cameras. The Program Team was given the tasks to administer the Blackboard; to ensure the students' and the staff's accounts work; and to also ensure that the staff were trained to use the Blackboard. They have two Developers, who were technicians, to keep the system going but they do not contribute to the development of the system itself. Apart from the already mentioned personnel, the college has five ILT Champions to promote the use of e-learning materials throughout the college's programs.

The ILT Coordinator/Head of English from College B on the other hand indicated that her main responsibility as the ILT Coordinator was to develop *the teaching and learning side of IT*. She was not involved in the technical side, which was supposed to be the responsibility of the Systems Manager. According to her, every faculty has an ILT Champion and they were the main people to deliver and develop IT in the faculty.

Another respondent from College D, who was the ILT Development Manager, indicated that his main duties were to manage the WebCT; to supervise the staff development programme; and to develop teaching materials for the college. He has currently one full-

time WebCT Administrator and three full-time Materials Production staff in his department.

It was noted that the ILT Champion from College E has different tasks to perform compared to the other respondents. Instead of developing IT and promoting the use of e-learning materials across the college, she was responsible for the technical side: buying software and organising the VLE (this was confirmed by the ILT Coordinator/Head of English from the same college). The ILT Champion from College G on the other hand, indicated that part of his job was to assist the staff that needed guidance or training for the first time. Accordingly he has to convince the college management about the staff's needs and to persuade the managers to put on training programmes to cater for these needs.

According to the ILT Coordinator from College F, as the ILT Coordinator he has to work with the teaching and the technical side. Luckily he has currently one person helping him to coordinate the overall implementation of ICT in his college. He worked closely with the Technical Service Manager and receiving assistance from the Technical Service Team as well.

The ILT Manager from College H indicated that all the staff in his college were trained to use the VLE, although it was not compulsory to use it. If the staff find the VLE was valuable to their teaching, they would request the ILT Manager and his team to write materials for them. The ICT Services Manager from College I gave an almost similar indication to the earlier comment made by the respondent from College H. According to him, all the teaching staff were encouraged to use the e-learning materials and were



encouraged to attend ICT-related courses, and have staff development sessions. He suggested that some staff were competent to use the computers, but they were not in the position to produce high quality e-learning materials.

Apart from identifying the main people who were responsible for the overall ICT implementation to deliver e-learning materials in FE colleges, the following issues were also raised: whether one person is able to coordinate it; who makes decisions about what software to buy; is funding obtained from external sources; and to check if the college has an ICT strategy. All the FE colleges studied indicated that one person is possible for coordinating the e-learning facilities and e-learning activities in the college. As for the person responsible for what software to buy, different answers were recorded which include the following: the E-learning Team; the ILT Coordinator and the Department's Head for each subject; The E-learning Manager based on recommendation made by the ILT Curriculum Committee; the tutors and the Production Staff; the Computer Management and Information Systems Group; the tutors through the Technical Services Manager or the ILT Coordinator; the tutors through their Line Managers; the individual tutors and the individual tutors through the ICT Services Department.

It was noted that only four colleges confirmed receiving a small amount of external funding to carry out e-learning activities in their college, as the main sources came from the internal funding arrangements. The remaining five colleges indicated that they were currently relying 100% on internal funding to finance their e-learning facilities. It was learnt that all the FE colleges studied confirmed having an ICT Strategy although some of them indicated that their ICT Strategy had already expired and should be updated



accordingly. Please refer to Table 6.2 to see how e-learning is organised in FE Colleges in terms of staffing, sources of funding and the college ICT Strategy.

**Table 6.2** How is e-learning organised in your college in terms of staffing, sources of funding and the college ICT strategy?

Colleges	Is one person possible for coordinating it?	Who makes decision about what software to buy?	Is funding obtained from external sources?	Is there a college ICT strategy?
College A	Yes, the E-learning Coordinator.	The E-learning Team.	No, we have internal funding arrangement.	Yes
College B	Yes, the ILT Coordinator.	The ILT Coordinator and the Department’s Head for each subject.	No, we have internal funding arrangement.	Yes
College C	Yes, the E-learning Manager.	The E-Learning Manager based on recommendation made by the ILT Curriculum Committee.	Yes but mostly from internal funding arrangement.	Yes
College D	Yes, The ILT Development Manager.	The teaching staff (tutors) and the Production Staff.	Yes, but mostly from internal funding.	Yes
College E	Yes, the ILT Coordinator.	The Computers’ Management Information Systems Group.	No, we have Internal funding arrangement.	Yes

College F	Yes, the ILT Coordinator.	The tutors through the Technical Services Manager or the ILT Coordinator.	No, 100% from the internal funding arrangement.	Yes
College G	Yes, the ILT Line Manager.	The tutors through their Line Managers.	Yes, but not much at the moment.	Yes
College H	Yes, the ILT Manager.	The individual tutors.	No, we have internal funding at the moment.	Yes
College I	Yes, the ICT Services Manager.	The individual tutors through the ICT Services Department.	Yes (very little). Mostly from internal resources.	Yes.

Note: The above data were extracted from the results of the semi-structured interview survey.

The most significant issues to emerge from this section are:

- Most FE colleges have a level of staff coordinating the e-learning facilities.

They were responsible for:

- ICT development in the college
  - Development in staff teaching materials
  - Monitor the dissemination of results and good practice of using e-learning materials in teaching and learning across the college.
- One college indicated that all the staff were trained to use the VLE, although it was not compulsory to use it. If the staff find the VLE was valuable to their teaching they will use it.

- Another college indicated that all the staff were encouraged to use the e-learning materials and to attend ICT related courses.
- All the FE colleges indicated that one person is possible for coordinating the e-learning facilities and e-learning activities in the college.
- The main sources of funding came from the college themselves (internal funding arrangement). Only a small amount of external funding was received by some colleges to finance their e-learning facilities and e-learning activities.
- All the FE colleges have an ICT Strategies.

Point number 2 above can be linked to the seventh barrier to ICT use which is related to no perception of benefits issue (Becta, 2004). Snoeyink and Ertmer (2001) noted the importance of teachers seeing purpose in using computers in their teaching and stressed the importance of focused training to show teachers how technology can help them in their own individual situations. Cox *et al.* (1999) believe that the perceived usefulness of computers to teaching is an important factor for teachers and should be included in any ICT training program.

Based on the research findings, we can conclude that e-learning activities in the FE colleges understudied were well-organised in terms of staffing, sources of funding, e-learning materials, staff training programs and ICT facilities which made it possible for the successful integration of ICT and e-learning materials across the college.



In line with the above, organisational factors were considered importance for the pedagogic aspects of e-learning delivery (McCracken and Dobson, 2003). These researchers have proposed a *body of principles* for blended learning design, through the exploration of issues relating to teaching and learning, organisational factors, discipline specific factors and learning technologies.

## **6.5 Is there Any Involvement with Outside Organisations with Regards to ICT Use in Teaching and Learning?**

The aim of this section is to examine the FE colleges' involvement with outside organisations with regards to ICT use in their college. Based on the interview results, it was found that all the FE colleges confirmed having some kind of involvement with the main national organisations which were responsible for the development of ILT: JISC, NILTA, FERL, NLN, NILC, BECTA and ALT as reflected by Table 6.3. It was revealed that some of the FE colleges were also involved in the Exchange for Learning Projects, which developed learning materials in different subject areas. As a member of this project, the FE colleges could establish wider external contacts and are able to use the learning materials so developed through online services.

It was noted from the interviews survey that the FE colleges were also actively involved with the following organisations: the commercial organisations which develop and supply the e-learning materials; the Regional Repository of E-learning Materials; the Regional Support Council; and various user groups, such as the West Midlands WebCT User's Group. The FE colleges have also established collaborations with other colleges

on certain e-learning material projects and activities as reflected by the following interview extracts:

Yes, there is a lot of involvement. In fact I go to various forums, of which I am a member. And then there is West Midland Web-CT User’s Group and the JISC. We liaise a lot and there are a good deal of mailing lists which I take part in (email groups). I am also involved with projects in collaboration with other colleges as well.

(ILT Coordinator from College F)

Sure, we are very actively working with BECTA, NILTA, and ALT; and those people involved in supporting and promoting the use of ICT in the classrooms. I myself am the representative of the Chairman of the West Midlands Branch of NILTA (National Information Learning Technology Association).

(ICT Services Manager from College I)

**Table 6.3** Is there any involvement with outside organisations with regards to ICT use in teaching and learning?

College A	Yes. The Exchange for Learning Projects.
College B	Yes. JISC Regional Support Centre. (Joint Information Service Centre).
College C	Yes. Commercial organisations to develop materials. Collaborations with other colleges on e-learning material’s projects and activities.
College D	Yes. JISC, NILTA, FERL and NLN. Collaborations with other colleges on certain projects. The Regional Repository of E-learning Materials.
College E	Yes. Commercial organisations, which supply the e-learning materials.

College F	Yes. JISC. West Midlands WebCT User's Group. Collaborations with other colleges on certain projects.
College G	Yes. JISC and NILC. Commercial organisations, which supply the programs.
College H	Yes. The Regional Support Council. Collaborations with other colleges, which use the MOODLE system to produce and share the materials.
College I	Yes. BECTA, NILTA and ALT

Note: The above data were extracted from the results of the semi-structured interview survey.

**6.6 The Colleges' Current Key Development Issues**

This section will focus on the colleges' current key development issues with regards to the application of e-learning materials in teaching and learning. With the exception of College E, all the FE colleges studied responded positively on this issue and each of them identified at least one current key development issue which was considered crucial if they were to exploit technology and get ICT and e-learning materials fully embedded across the curriculum. The Vice Principal of Curriculum and Quality from College A for example, revealed that their current key development issue was to encourage greater use of ICT and e-learning materials among the teaching staff. He suggested that tutors should be more systematic towards their requirements and expectations from a particular ICT-related program and system:

I think the key development issue is to encourage greater use of ICT and e-learning materials by becoming more systematic about what to expect. I don't



think the development is going to be in term of depth, doing more, but in term of breadth, getting more people to do something.

The ILT Coordinator/Head of English from College B on the other hand considered the following as their current key development issues: looking at further development of the VLE; enhancing the use of the VLE in teaching and learning; looking at developing the use of voting rights to buy some software; and to encourage more interactive use of application software. According to her they must ensure that as a college, all the classrooms are well equipped with the latest technology, fitted with Smartboards and possibly having wireless technology as well.

The E-learning Manager from College C identified funding as their current key development issue:

Funding is our key development issue at the moment. We have a willingness to use it, we have good systems, but we need funding to develop these materials.

Despite of having good systems and willingness to use the e-learning materials, the above college was obviously in need of extra funding to develop e-learning materials.

The ILT Development Manager from College D on the other hand, outlined two development issues which they considered as their top priorities at the moment: the role of WebCT to enable e-learning materials available to all students; and a three-year programme of having more IT equipments in the teaching rooms (possibly to have Smartboards in every teaching room in the near future).

The ILT Coordinator from College F indicated that they have only one key development issue at the moment, which was to provide tutors with tools and templates to create

online exercises, as these tools would enable them to create lessons and activities in a more efficient manner:

The key development issue is to provide teachers with simple-to-use tools and templates which they can use to create online exercises. We have some at the moment but we have not actually put them out to staff yet. So we are actually providing teachers with tools and that's why we see it as the key development issue.

The ILT Champion from College G listed three important development issues which they were currently working with. The first key development issue was to put more Smartboards into the classrooms, which they hope will contribute to more developments in interactive strategies using ICT. The second issue was to open up the VLE to the outside world; and the third issue was to look at greater use of e-mails for assessments and assignment purposes as indicated by the following interview extract:

The first one is that we are going to put more Smartboards into classrooms; that would lead to a heavier demand to use them. That would lead to more development of interactive strategies of using ICT. Since the demand for distance learning is definitely about to go down, we are looking at opening up the VLE to the outside world. And we are also looking at usage of e-mails for assessments and assignments.

It is not clear why this comment was made (*since the demand for distance learning is definitely about to go down*) and unfortunately a follow up question was not asked. Most probably the ILT Champion from College G meant that the demand for traditional paper-based distance learning will go down and this could be prevented by using the VLE.

The ILT Manager from College H revealed that they were actually putting their key development issue on hold, as they were currently busy installing a new system at the



college. Their next key development issue was to implement the use of ICT and e-learning materials across the core curriculum subjects (Mathematics, English and other core curriculum subjects):

We are actually putting it on hold for the moment, while we put the new system in. The next key development we are going to go for is called Curriculum. So we are going to be working for Mathematics, English and other core curriculum subjects. Basically we will start with GCSE level, and eventually more to A-Level courses.

The staff development issues; the content of e-learning materials available; and the issue of accessing the college's learning resources were the current key development issues of College I. According to the ICT Services Manager:

The key development issue at the moment is to do with staff development; to ensure that the staff are equipped sufficiently to be able to use the technology as and when required. Instead of using a laptop we have to think about all the things you could use, pick the right thing at the right time. The other development issue would be with regards to the content of the e-learning materials available because there isn't enough material available to cover all courses. Whether they have to be bought or we have to produce, this is going to be running with us forever because courses change all the time, so materials have to change as well. The third issue is the question of accessing the college's learning resources to a wider possible number of students that we have.

To summarise this section, the current key development issues of the FE colleges participated in the research interview are as follows:

- To encourage greater use of ICT and e-learning materials among the teaching staff.
- Looking at further development of the VLE and to further enhance the use of VLEs in teaching and learning.



- Looking at developing the use of voting rights to buy some software and to encourage more interactive use of applications software.
- To ensure that all the classrooms are well-equipped with the latest technology, fitting with smartboards and possibly having the wireless technology as well.
- Looking at obtaining extra funding to develop e-learning materials.
- Focusing on the role of WebCT to make e-learning materials available to all students.
- Focusing on a three-year program of having more IT equipments in teaching rooms.
- To provide tutors with tools and templates to create online exercises.
- Looking at opening up the VLE to the outside world.
- Looking at greater use of e-mails for assessments and assignments purposes.
- To implement the use of ICT and e-learning materials across the core curriculum subjects (e.g. Mathematics and English).
- Looking at the staff development issues and the content of the e-learning materials available.
- Focusing on the issue of accessing the college's learning resources to a wider possible number of students.

For the above current key development issues to materialise, it was felt that the FE colleges need to observe the Ten Pedagogic Principles for E-learning (Becta, 2005).

Anderson and McCormick (2005: p1) suggested that:

there is an implicit assumption in this principled approach that the more of the principles that are embodied, the better the quality of the pedagogy; and the lower the quality, the fewer.

These authors argued that the above principles should be able to help designers to develop e-learning materials and related activities in a way that they truly observed the sound principles of pedagogy of e-learning. The principles should also be able to help teachers in choosing resources; designing teaching and learning activities that use them (resources); and supporting such activity while it takes place. Indirectly, the researchers felt that it is important for the teachers to get involve in the planning process in which case it agrees with our findings.

Discussions on the current key development issues above are also related to Shulman's (1987) model of pedagogical reasoning which focuses on the processes involved in teaching (including the transformation of knowledge and how it can be taught) and the issue of pedagogical content knowledge. Since pedagogical content knowledge differs between subjects, the choice and use of ICT resources will differ in terms of pedagogical practices for different subject teachers.

A study conducted by Mooney *et al.* (1999) provides an example of the use of technology to support learning and to some extent, an attempt to build a deeper understanding of ideas through participation. Mooney *et al.* (1999) also claim that the

learning program encourages mental activities and that it makes use of a range of strategies to promote deep processing of information.

## **6.7 The Colleges' Future Plans for ICT Use**

The aim of this section is to identify the colleges' future plans for ICT use (approximately three years from now). It was noted from the interviews that each college (except for College E which did not respond to this issue), has specific plans for ICT use in the near future and some colleges have more (plans) than the others. The respondent from College A for example has identified four future plans for ICT use:

The college will have more wireless access for students to bring in their laptops; there would be more distributive learning to replace parts of the traditional learning; every course in the college would be using the Blackboard for a minimum specification; and more programs would be using the Blackboard for its more interactive features and more interactive learning.

Both of the respondents from College B have also identified four future plans to be implemented at their college:

...to have a centre (located outside classrooms) which may serve as a drop-in area for IT students outside lessons; to have wireless technology to enable students to access networks in the classrooms or outside classrooms; to have a lot more materials on Moodle; and to have e-learning materials which were even more interactive.

According to the respondent from College C, since the college would be relocated to a different area with high technology facilities soon, they would definitely be using high technology for teaching and learning (having classrooms with interactive whiteboards,



using mobile technology and having wireless technology within the classrooms). He insisted that the advantages of having mobile technology would be that:

Learning will move more out of classrooms and the classrooms will become much more than a place to facilitate learning.

The ILT Development Manager from College D on the other hand was hoping to see that in three years time:

We should be at the point when all courses have WebCT content as part of their courses. All students, as well as attending classes, will be able to access further reading and resources from home or from work or from where they are based, to support their learning. And they should have access to the students' portal, which give access not only to WebCT but also the college e-mail, story spaces, etc; so that they can actually log on from anywhere and access all the college services.

The ILT Coordinator from College F highlighted two future development plans for their college:

firstly to make more e-learning materials for the curriculum and secondly, to create an environment for students to actually design the e-learning materials themselves.

According to him given enough materials and content, students could actually plan their own learning in the future.

The ILT Champion from College G has also identified three important plans for ICT use in the near future:

In three years time, we plan to have a totally open VLE network; students accessing information from wherever they are; and meeting the Government's target for assessment and distance learning.

The ILT Manager from College H on the other hand commented that:

We've got to expand. We hope to get access to interactive boards in all our teaching areas within three years. There is already a rolling program put in place for that. I have just bought 33 new interactive boards. I am increasing the number of PCs available to students. So we see it a major part of our teaching over the next three years; and hope it goes well in the future.

The ICT Services Manager from College I concluded this investigation by outlining four future plans for ICT use in his college:

...to make sure that as a college we are prepared for it; to further develop the staff; to further develop the resources; and to make sure that technology would serves us well in the future.

The comment from College F is important and interesting i.e. the idea that students would design their own materials. The implication for the pedagogy is that, students will be responsible for their own learning. These students are more skilled at multi-tasking and less tolerant of traditional teaching processes. The changes from *traditional teaching* and towards *individual learning* will continue as new learning materials and delivery system become more sophisticated. *Individual learners* will require more support as they progress through their individual learning program. Teaching and learning will become more *flexible* and *learner-centred*.

The learning theories (the humanist and the constructivist) of Merriam and Caffarella (1991) are also relevant here. The humanist views individuals as seeking self-actualisation through learning and being capable of determining their own learning. So if learners were allowed and capable of producing their own learning materials, they

could finally achieve self-actualisation through learning. The advantage of this approach is that, learners are capable of determining their own learning, and not other wise.

The constructivist on the other hand, believes that all knowledge is context bound and that individuals make personal meaning of their learning experiences through internal construction of reality and emphasise the importance of changing oneself and the environment. The advantage of this approach is that learners are able to make personal meaning of their learning experiences by producing their own learning materials. Another advantage of the constructivist approach is that by developing their own materials, these learners were actually changing themselves from passive to active learners; which in it self has also changed the learners' learning environment.

Another important issue raised by the FE colleges was to increase the quantity and to improve the quality of the e-learning materials used. The following extracts serve as evidence on the seriousness of the FE colleges to improve the use of ICT and e-learning materials in their respective colleges:

...to have a lot more materials on Moodle (VLE) and to have e-learning materials which were even more interactive.

College B

We should be at the point when all courses have WebCT (VLE) content as part of their courses.

College D

...to make more e-learning materials for the curriculum...

College F



...to further develop the staff, to further develop the resources...

College I

A study on the relationship between a school's use of ICT and its pupils' achievements in national tests has found that:

those schools, which were well resourced in ICT, tended to have better achievements than schools with unsatisfactory levels of ICT.

(Becta, 2004 p.11)

The above finding suggests the importance of the FE colleges to be well resourced in ICT, as the lack of good ICT resources will not only prevent teachers from making good use of ICT in their teaching but it is also likely to have a detrimental effect on pupils' achievement (Becta 2004).

## **6.8 Conclusions**

This chapter has presented the findings on the main issues related to the application of e-learning materials used in FE colleges. Under Section 6.2 the thesis has described in detail how the teaching staff deal with variation in learner's ability to use e-learning materials and ICT related equipment and technology. Section 6.3 identified the problems in delivering e-learning materials in FE colleges; Section 6.4 examined how e-learning is organised in FE colleges in terms of staffing, sources of funding, and the colleges' ICT strategy; while Section 6.5 highlighted the FE colleges' involvement with outside organisations with regards to ICT use in teaching and learning. Section 6.6

disclosed findings on the colleges' current key development issues while Section 6.7 revealed the colleges' future plans for ICT use.

## **Chapter 7**

### **Findings: The Teachers' Attitudes and Perceptions on the Application of ICT and E-learning Materials Used in Post-compulsory Education**

#### **7.1 Introduction**

The aim of this chapter is to present the findings on the teachers' attitudes and perceptions on the application of ICT and e-learning materials used in the selected FE colleges in the West Midlands. The results of the teachers' attitudes and perceptions, which are reported in this chapter, are based on evidence received from the Teachers' Questionnaires collected during the case study investigation in three FE colleges. Fifteen teaching staff from three different FE colleges completed the Teachers' Questionnaires (structured, closed-questions and formatted using the rating scales). These colleges were selected from the nine FE colleges which participated in the semi-structured interviews conducted earlier. As has been pointed out in Chapter 3 (Research Methodology), the criteria for the selection of these colleges was mainly based on the active use of e-learning materials in their curriculum areas. Teaching groups for which ICT was used regularly were included in order to provide adequate opportunities for teachers to comment on their teaching experiences. Responses from the Teachers' Questionnaires were analysed and charted using Microsoft Excel.

To complete the case study investigation twelve teaching sessions from three different FE colleges were observed. The findings from these observations will be used to evaluate some of the data presented in this Chapter and Chapter 8. Further details of the



observation procedure are presented in Chapter 3. From the same three FE colleges, a total of 153 students completed the Learners' Questionnaires, the results of which will be reported in Chapter 8.

## **7.2 Research Findings**

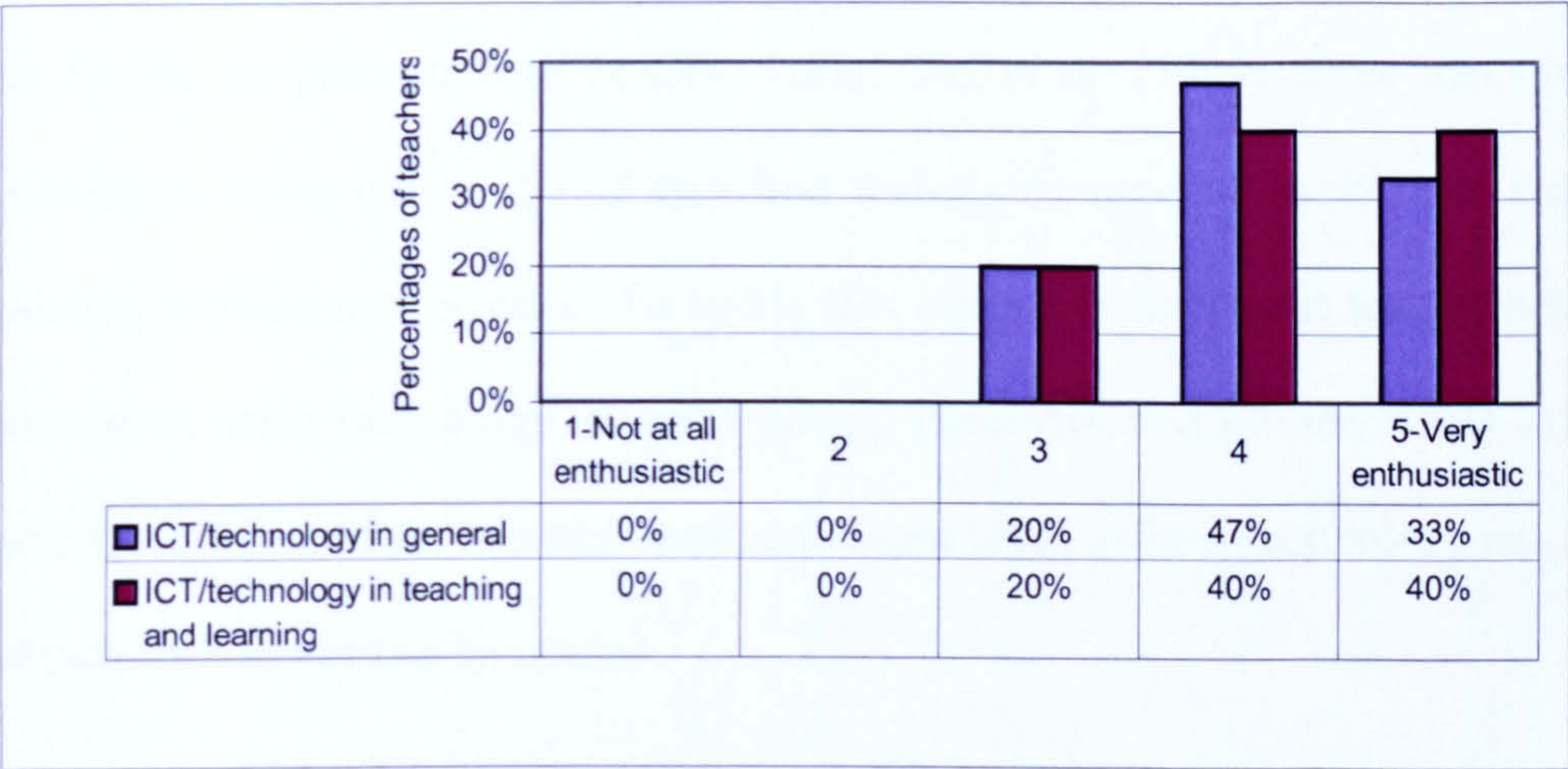
The results from the case study investigation into the teachers' attitudes and perceptions on the application of ICT and e-learning materials used in FE colleges were analysed under five broad categories: technology and teachers; technology usage; technology support; technology content; and technology impact and learning outcomes. With the exception of the first category (technology and teachers), which examined the teachers' attitudes towards ICT and technology in general and their attitudes towards ICT and technology in teaching and learning, each category was further divided into several areas. Under technology usage, this thesis will investigate the following areas: the extent to which ICT and technology are used in the teaching environment; the teachers' perceptions of the value of ICT and technology in the teaching environment; the extent to which ICT and technology are used inside and outside the classroom; the teachers' perceptions of the value of ICT and technology are used inside and outside the classroom; and the extent to which new learning technology has changed the way teachers work over the last five years. Technology support on the other hand dealt with the teachers' satisfaction level in relation to the IT support received by them; the teachers' satisfaction level in relation to the courses that were designed to improve their technology skills; the teachers' satisfaction level in relation to the courses that were designed to help them use technology in their work; and the teachers' confidence level to deliver and support learning with ICT and technology. Two areas were examined in the fourth category (technology content): firstly the extent to which ICT methods and

equipment are used for teaching and learning in classroom and learning centres; and secondly the extent to which the college VLE and Intranet are used for the courses that they teach. As for technology impact and learning outcomes, three important issues were raised: the teachers' perceptions of the positive impact of using ICT and technology; the teachers' perceptions of the *current* improvement in the student's learning outcomes as a result of the application of technology; and the teachers' perceptions of the *future* improvement on the students' learning outcomes as a result of the application of technology.

### **7.2.1 Technology and Teachers**

On the question of how they would characterise their attitudes towards ICT and technology in general, it was noted that 80% of the respondents were enthusiastic and only 20% considered themselves less enthusiastic. As for their attitudes towards ICT and technology in teaching and learning, the same encouraging response was obtained, whereby 80% of the respondents were enthusiastic and the remaining 20% were less enthusiastic. Figure 7.1 highlights the investigation's results into the teachers' attitudes towards ICT and technology in general in comparison with their attitudes towards ICT and technology in teaching and learning.





**Figure 7.1:** The teachers’ attitudes towards ICT and technology in general and their attitudes towards ICT and technology in teaching and learning.

The most important issue here is that 20% of the respondents considered themselves less enthusiastic on the question of how they would characterise:

- their attitudes towards ICT and technology in general.
- their attitudes towards ICT and technology in teaching and learning.

These negative attitudes of the teachers towards ICT and technology, in teaching and learning context in particular, could be linked to the sixth and the seventh barriers to ICT use (Becta, 2004). The sixth barrier to ICT use is the resistance to change and negative attitudes, whereas the seventh barrier is one which is related to no perception of benefits issue. The resistance to change and negative attitudes towards ICT and technology among teachers (Albaugh, 1997) could be due to the following:

- They are suspicious of new claims and the implementation of new ideas without proof of effectiveness.
- They tend to adopt a new technology when that technology helps them to do what they are currently doing better.



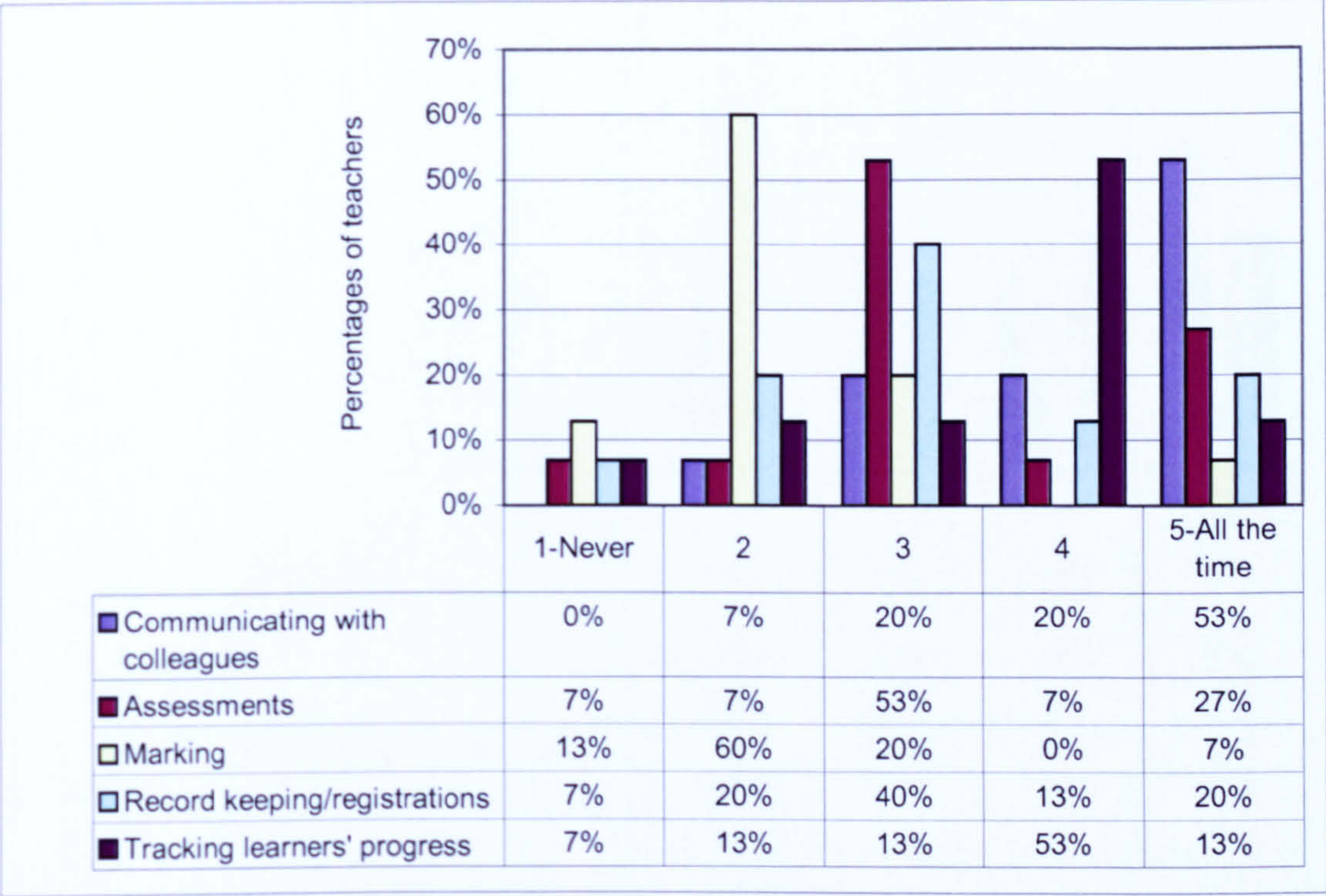
As for the no perception of benefits issue, Cox *et al.* (1999) argue that teachers are unlikely to make use of ICT if they find there is no need to question or change their existing professional practice. To tackle this issue it is important for teachers to see a purpose in using technology in their teaching (Snoeyink and Ertmer, 2001). At the same time there is a need for focused training to show teachers how technology can help them in their own individual situations.

The resistance to change and negative attitudes; and no perception of benefits issue among teachers need to be addressed by the persons responsible for the implementation of pedagogy of ICT and e-learning materials in FE colleges. If the above issues are not properly tackled, they may become obstacles for the FE sector to fully uptake ICT in their curriculum.

### **7.2.2 Technology Usage**

Evidence from the Teachers' Questionnaires has indicated that ICT and technology were heavily used by teachers for communicating with colleagues since 73% of the respondents confirmed using it most of the time. Tracking learners' progress was another area in which ICT and technology were frequently used as 66% of the respondents confirmed using them most of the time. Apart from that, 34% of the respondents used ICT and technology for assessments, 33% for record keeping and registrations and 7% for marking most of the time (Figure 7.2). Teachers seemed to recognise the value of ICT to enhance teaching and learning, but less so as a tool to improve their productivity or reduce their workload.

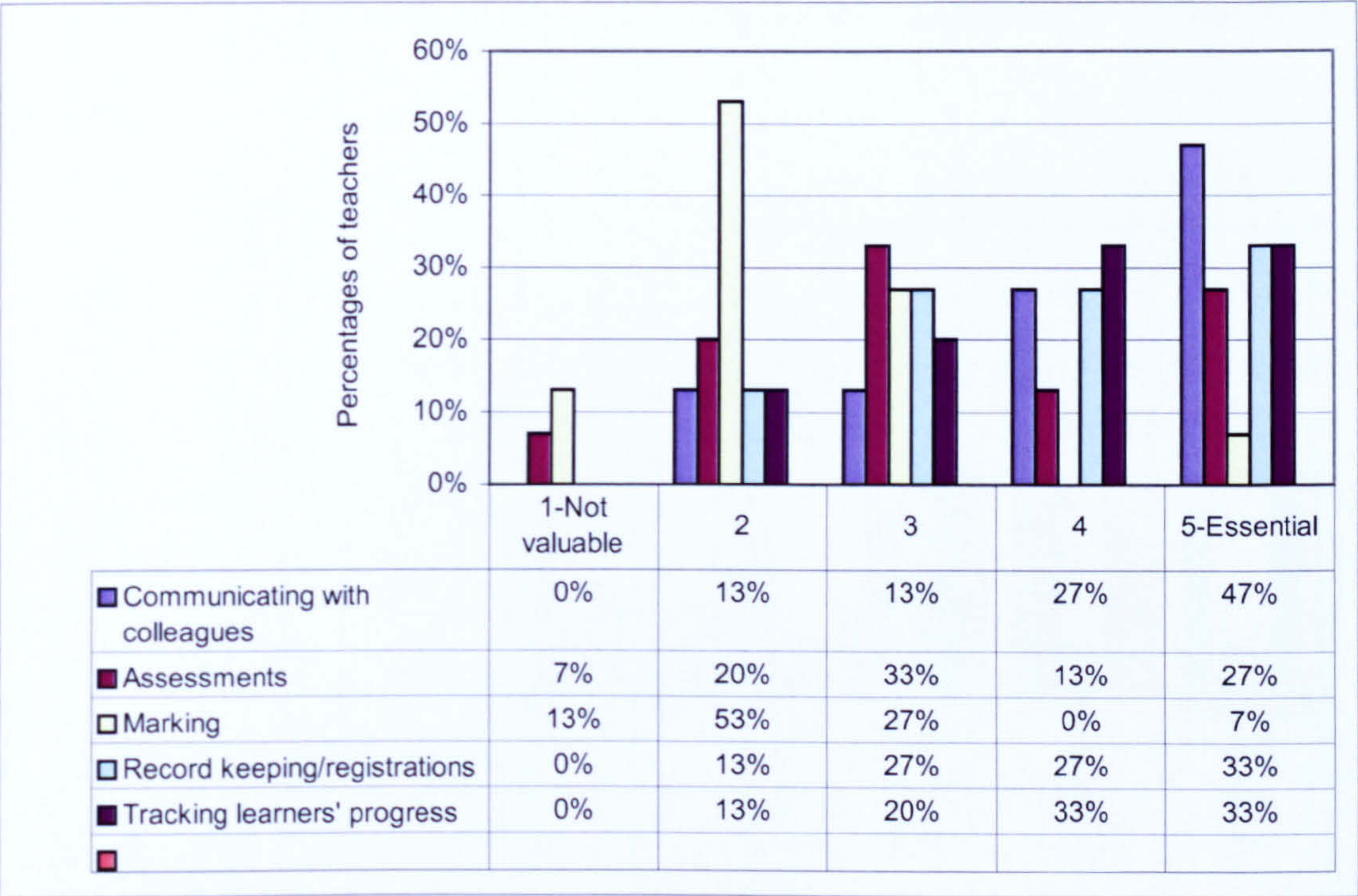




**Figure 7.2:** The extent to which ICT and technology are used in teaching and learning.

On the question of how valuable ICT and technology are in teaching and learning, it was noted that 74% of the respondents confirmed that ICT and technology are valuable and essential for communicating with colleagues, 66% for tracking learners' progress, 60% for record keeping and registrations, 40% for assessments, while 7% of the respondents considered ICT and technology are essential for marking (Figure 7.3). For certain activities such as record keeping, the teachers' perceptions of the value of ICT seemed to exceed the extent to which they put it into practice.



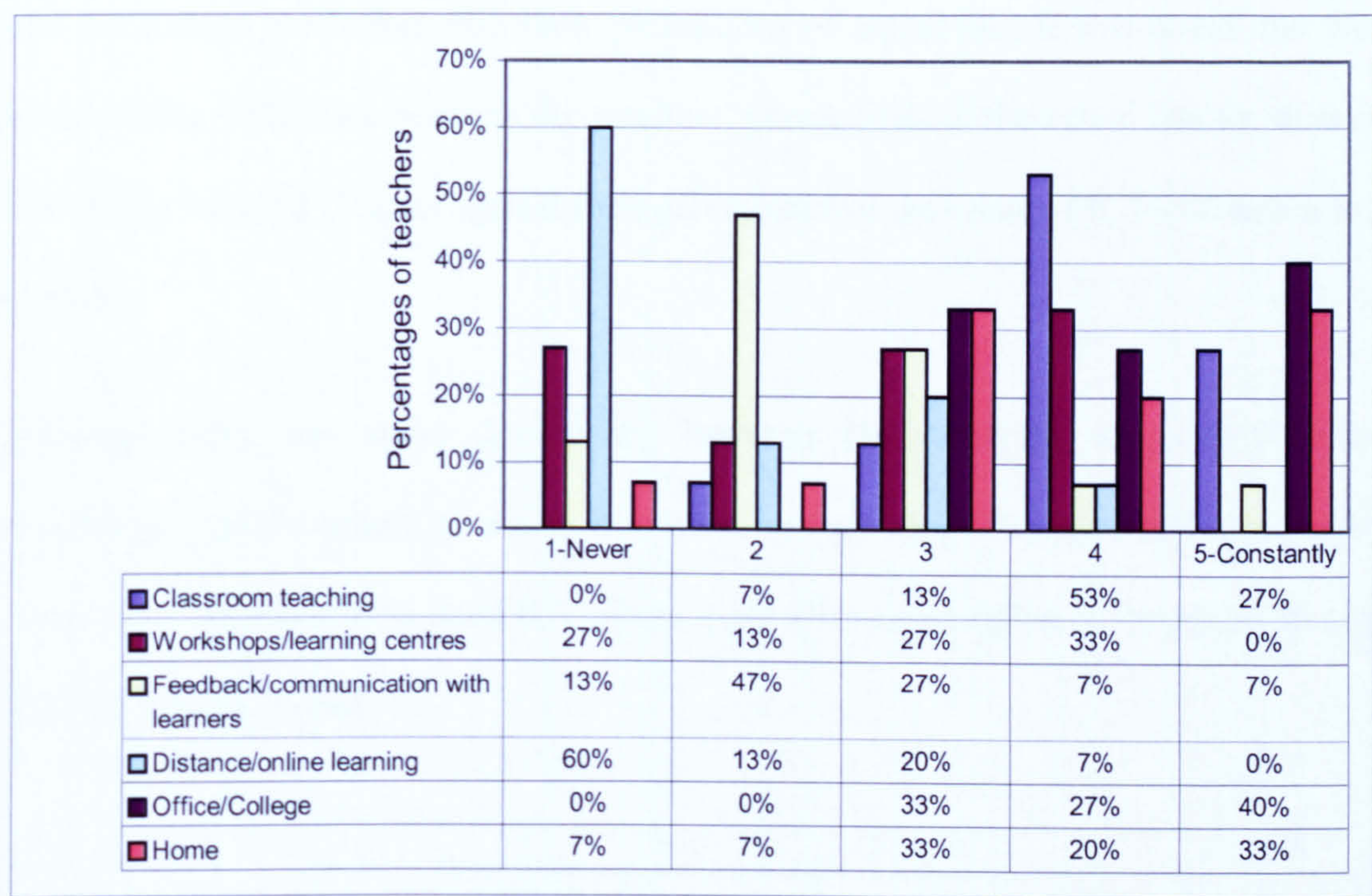


**Figure 7.3:** The teachers’ perceptions of the value of ICT and technology in teaching and learning.

Respondents were asked how often do they use ICT and technology for classroom teaching or any other activities outside the classroom. It was found that 80% of the respondents used ICT and technology for classroom teaching most of the time (27% used them constantly). The respondents also frequently used ICT and technology in their office at college (67%), at home (53%) and in workshops and learning centres (33%). However it was noted that ICT and technology were not frequently used for feedback and communication with learners as only 14% of the respondents used them most of the time. Another area of which ICT and technology were not frequently used was distance and online learning, in which case only 7% of the respondents used them most of the time (Figure 7.4). Teachers used ICT a lot to communicate with each other, but not to communicate with students. ICT and technology were used quite a lot for classroom teaching, but not for online learning. The teachers also used them a lot at



home and in the office and yet they did not seem to use it much for the management of learning.



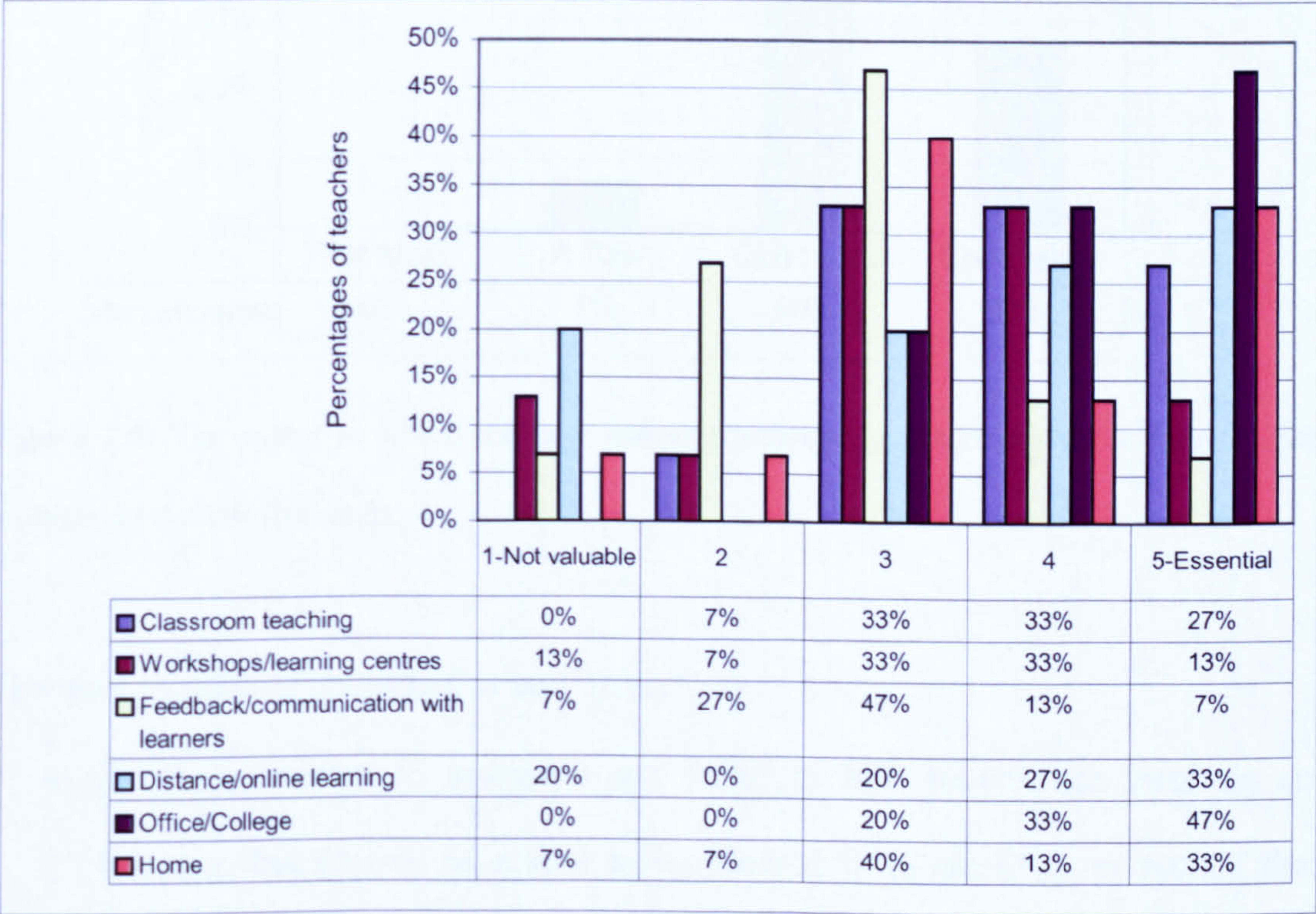
**Figure 7.4:** The extent to which ICT and technology are used for inside and outside the classroom.

Evidence from this study has suggested that teachers strongly valued the use of ICT and technology in their office at college; for classroom teaching; for distance and online learning; in workshops and learning centres; and at home. It was noted that 80% of the respondents considered ICT and technology to be valuable in their office at college, 60% for classroom teaching, 60% for distance and online learning, 46% for workshop and learning centres and another 46% found ICT and technology as valuable tools at home. The use of ICT and technology was however not considered very important for feedback and communications with learners since only 20% of the respondents regarded ICT and technology as valuable in these areas (Figure 7.5). The teachers’ perceptions of the value of ICT and technology in workshops and learning centres are higher than their



perceptions of the actual use. Similar results were obtained (feedback and communications with learners) of which the teachers' perceptions of the value of ICT and technology are higher than their perceptions of actual use. It was noted that there was a strong difference between the teachers' perceptions of the actual use for distance and online learning (7%) as against their perceptions of the value of ICT and technology (60%).

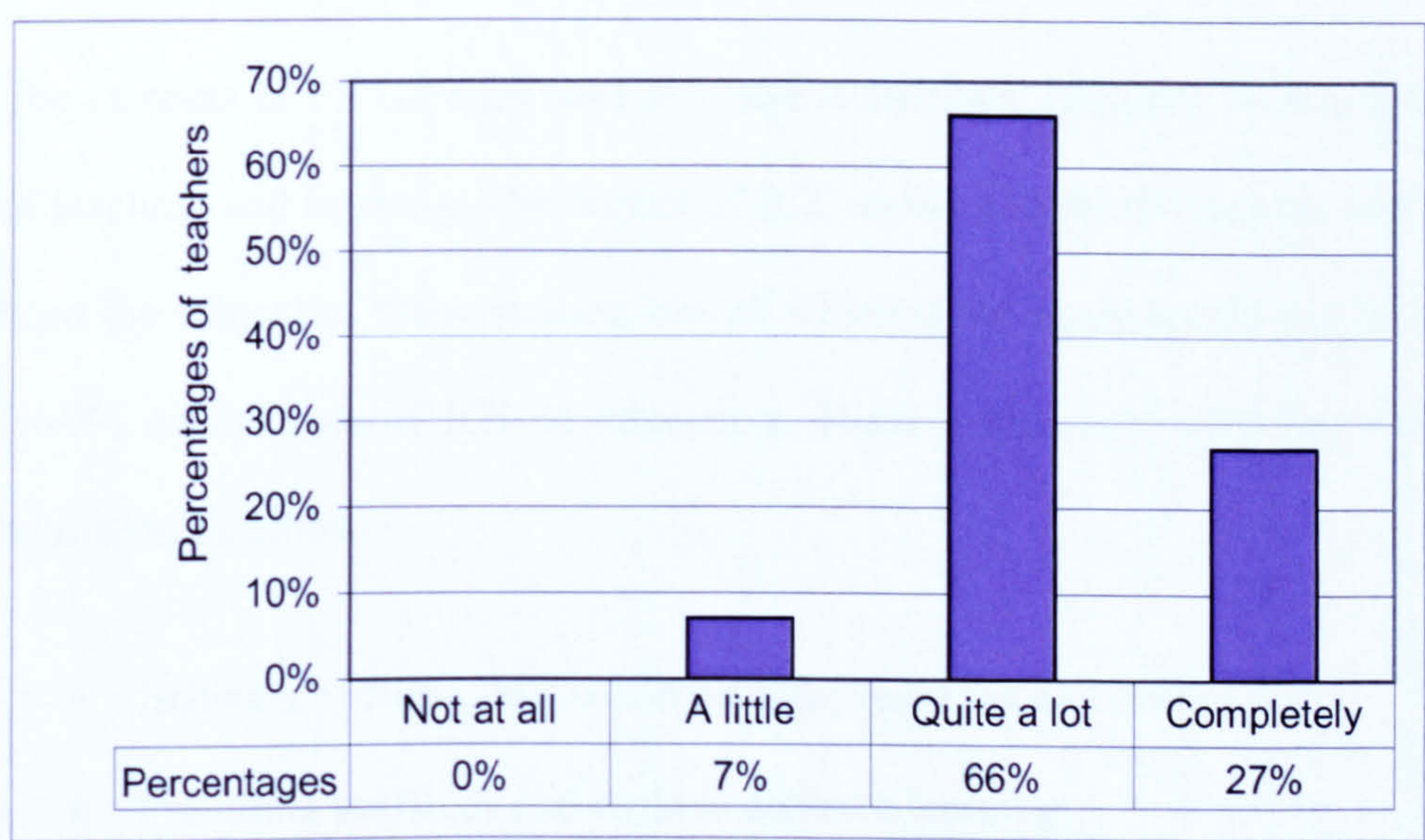
Although there was some discrepancy between the perceived value of ICT and technology and the extent to which it is used, in that only 27% used ICT completely, when taken together 93% used ICT either quite a lot or completely, implying that the ICT use is high overall.



**Figure 7.5:** The teachers' perceptions of the value of ICT and technology for inside and outside the classroom use.



Based on this investigation, there is an indication that the new learning technology certainly has had an impact on the way teachers work over the last five years. It was noted that 27% of the respondents confirmed that it has completely changed the way they work while another 66% considering the way they work has changed quite a lot over the last five years as a result of the new learning technology. Only 7% of the respondents indicated that there had been little change in the way they work over the last 5 years, with the implementation of the new learning technology (Figure 7.6).



**Figure 7.6:** The extent to which the new learning technology has changed the way teachers works over the last five years.

The most significant issues in this section are:

- Teachers seemed to recognise the value of ICT to enhance teaching and learning, but less so as a tool to improve their productivity or reduce their workload. For certain activities such as record keeping and registrations, the teachers’ perceptions of the value of ICT seemed to exceed the extent to which they put it into practice.



- Teachers used ICT a lot to communicate with their colleagues, but not to communicate with students.
- ICT and technology were used quite a lot for classroom teaching, but not for online learning.
- The teachers also used ICT and technology a lot at home and in the office, and yet they did not seem to use it much for the management of learning.

The teachers in FE colleges used ICT and technology primarily to improve the quality of teaching and learning. The impact of ICT on the quality of teaching and learning has been the subject of many studies; one of which is the study conducted by Brown *et al.* (1999) on the role of ICT in education. These researchers view the role of ICT in education as follows:

- Bringing exciting, real world problems into the classrooms.
- Providing scaffolds and tools to enhance learning.
- Giving students and teachers more opportunities for feedback, reflection, and revision.
- Building local and global communities.
- Expanding opportunities for teachers' learning.

Expanding opportunities for teachers' learning is one of the important roles of ICT in education. Technology also provide teachers with opportunities to be part of their own local and global learning communities; to use web technologies and various applications to scaffold their learning; and to revise, reflex and receive feedbacks (Brown *et al.*, 1999).



7.2.3 Technology Support

This study has indicated that the teachers’ satisfaction level was quite high in relation to the IT support received by them as 60% of the respondents confirmed that they were satisfied with the use of the Intranet and VLE, 53% satisfied with the hardware provided by the FE colleges, 60% satisfied with the staff development and training for ILT and another 60% satisfied with the teaching materials available for use as reflected by Figure 7.7.

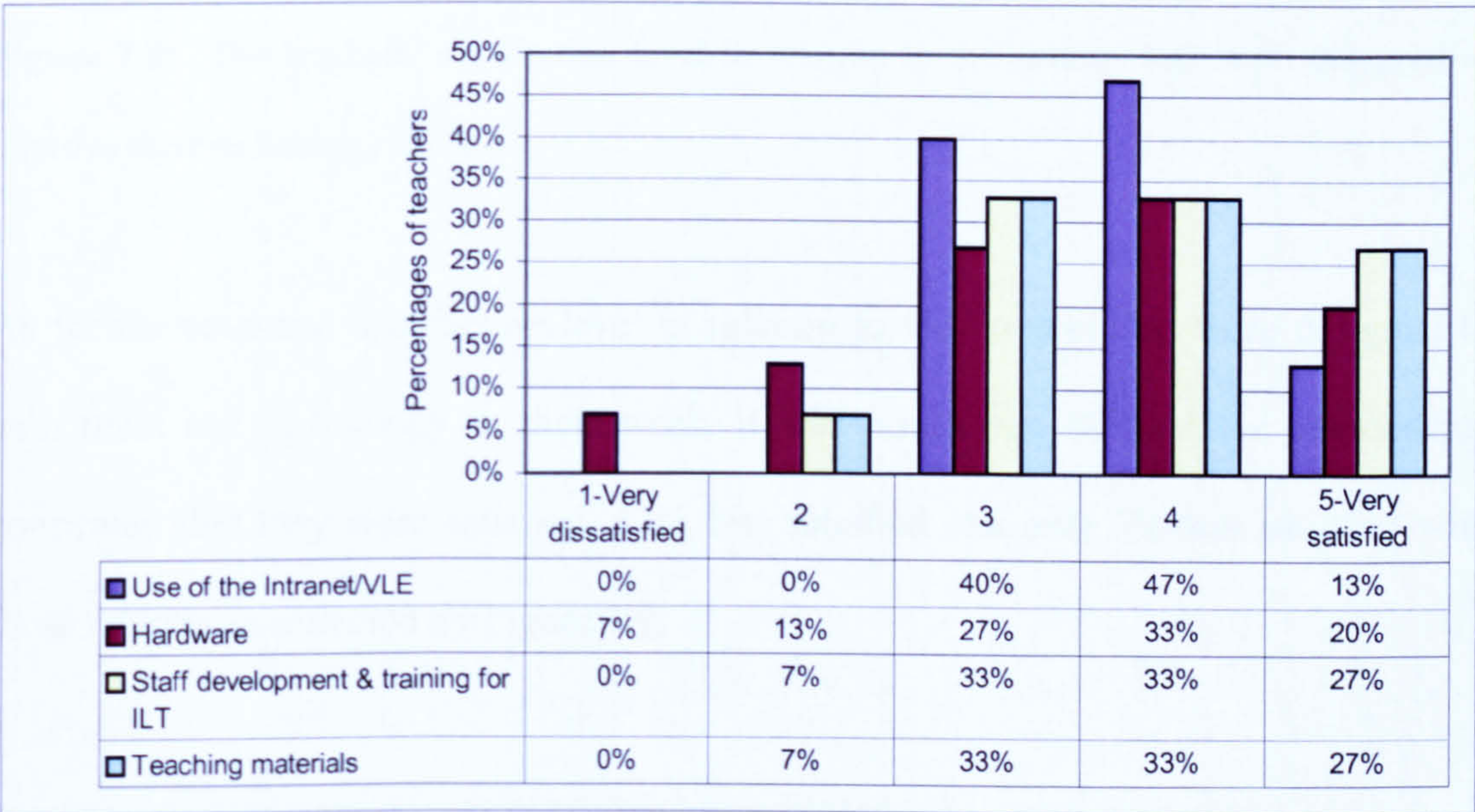
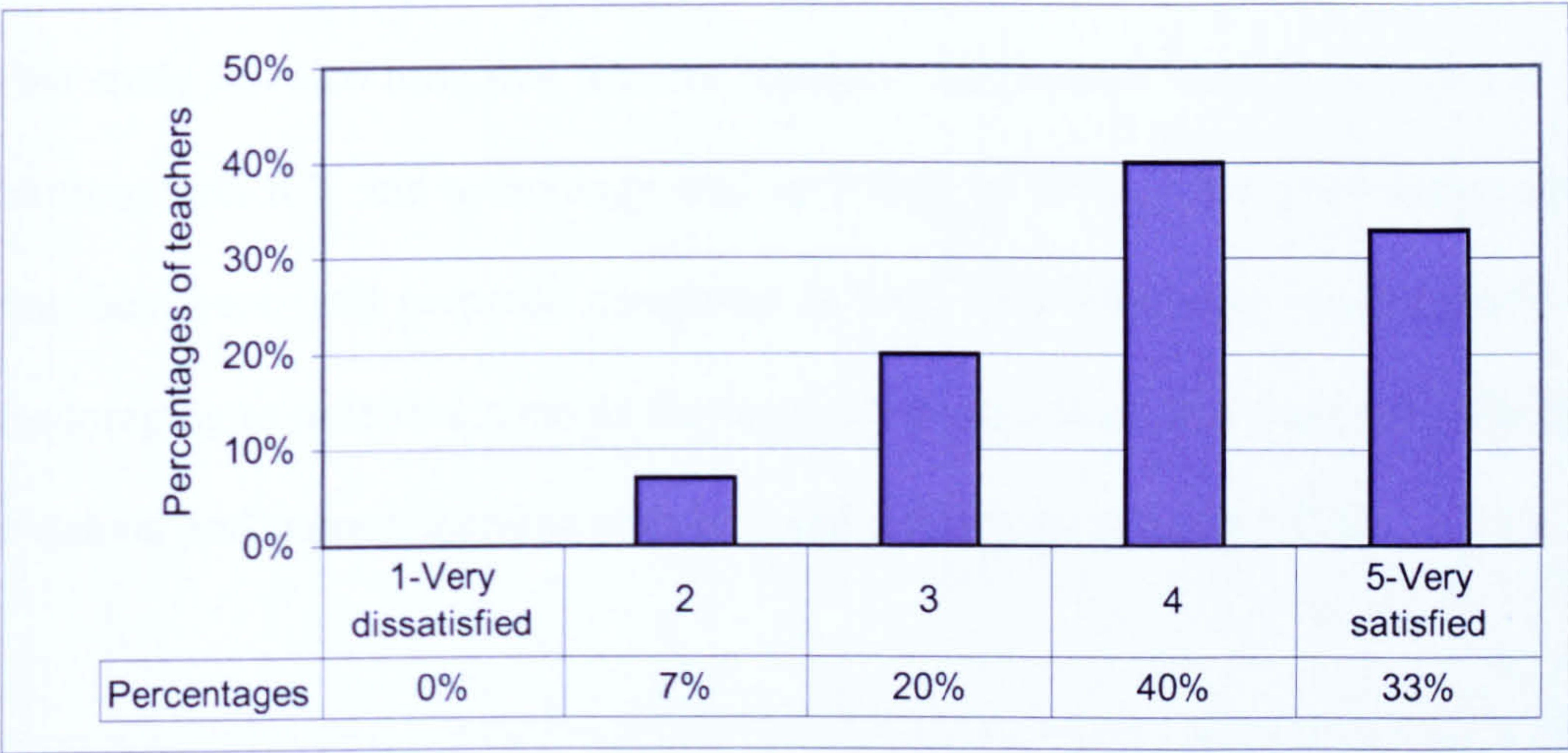


Figure 7.7: The teachers’ satisfaction level in relation to the IT support received by them.

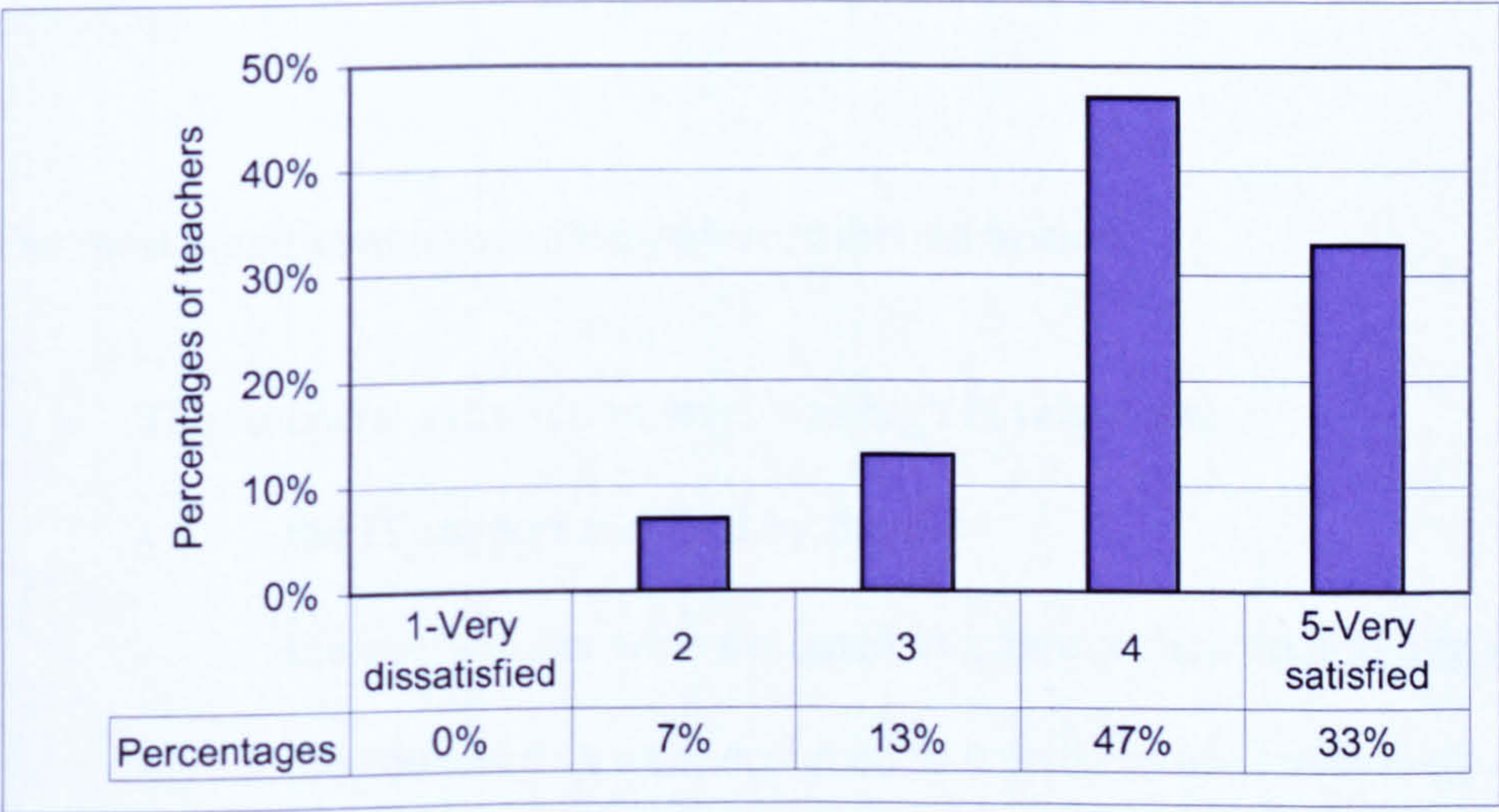
It was also noted that the teachers’ satisfaction level was high in relation to the courses that were designed to improve their technology skills as 73% of the respondents were satisfied, 20% less satisfied and only 7% showed their dissatisfaction over those courses (Figure 7.8).





**Figure 7.8:** The teachers’ satisfaction level in relation to the courses that were designed to improve their technology skills.

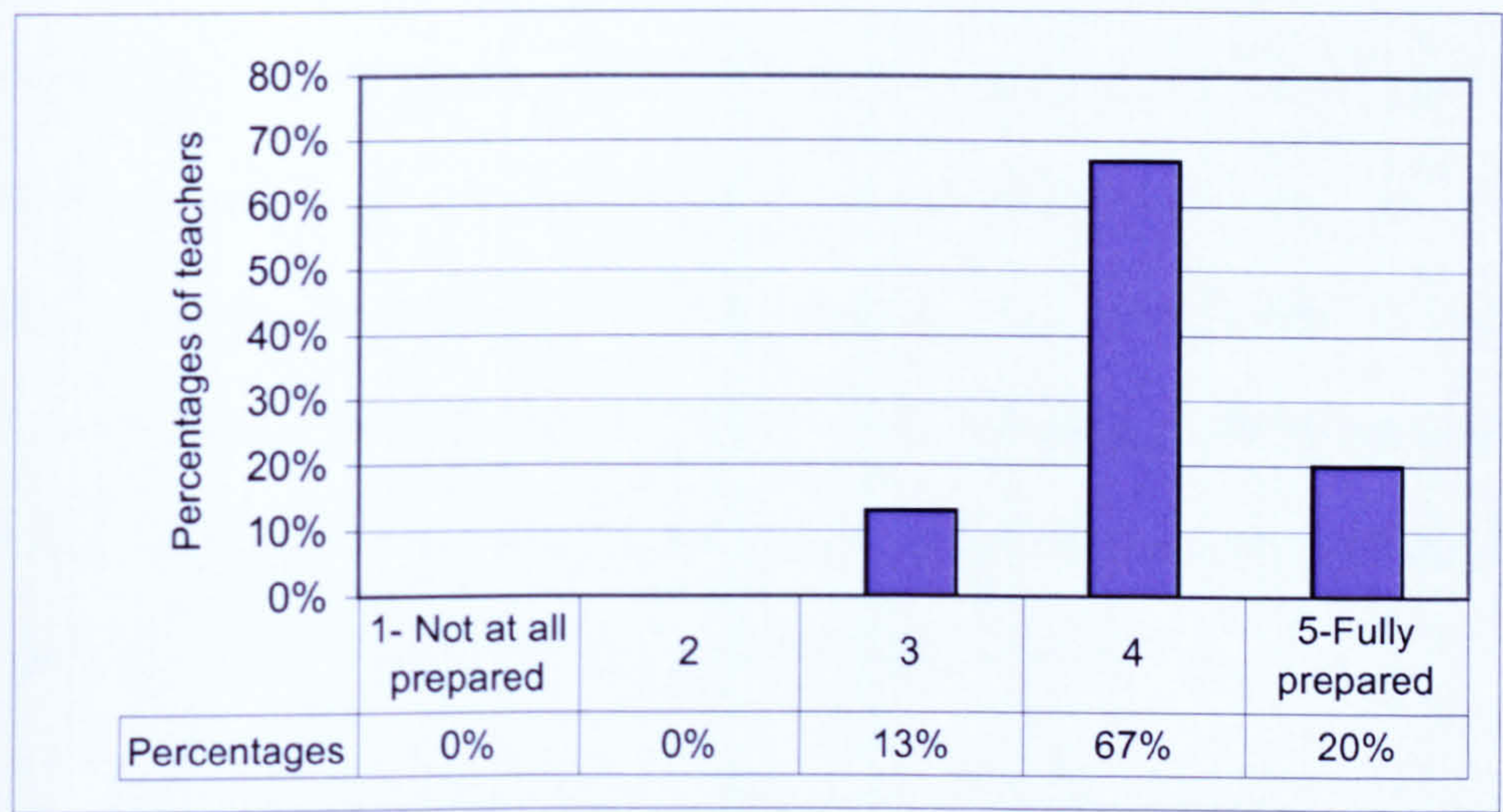
As for the teachers’ satisfaction level in relation to the courses that were designed to help them use technology in their work, it was noted that 80% of the respondents confirmed that they were satisfied, 13% less satisfied and only 7% not satisfied with those courses as reflected by Figure 7.9.



**Figure 7.9:** The teachers’ satisfaction level in relation to the courses that were designed to help them use technology in their work.



This study has also indicated that the teachers’ confidence level to deliver and support learning with ICT and technology was very high as 87% of the respondents suggested that they were well prepared compared to only 13% who were less prepared. It was encouraging to note that none of the respondents indicated that they were not prepared to deliver and support learning with ICT and technology (Figure 7.10).



**Figure 7.10:** The teachers’ confidence level to deliver and support learning with ICT and technology.

The most significant issues emerged from this section are:

- The teachers’ satisfaction level was high in relation to:
  - the IT support received by them.
  - the courses that were designed to improve their technology skills.
  - the courses that were designed to help them use technology in their work.
- The teachers’ confidence level to deliver and support learning with ICT and technology was found to be considerably high too.



The lack of teachers' confidence to deliver and support learning (with ICT and technology) in the classroom has become an interesting educational issue in recent years. This issue is important because it is one of the determining factors for effective learning outcomes. The lack of teachers' confidence and teachers' computer anxiety is the first barrier to ICT use (Becta, 2004). The reasons for the lack of teachers' confidence and teachers' computer anxiety could be due to the fact that teachers were worried about showing their pupils that they did not know how to use the equipments (Larner and Timberlake, 1995). It was also found that it was the teachers who experienced this kind of anxiety who were less willing to make use of computers in their teaching. It was uncommon for students to be increasingly placing demands on teachers and expecting them (teachers) to be knowledgeable in the area of computer usage (Guha, 2000). It was felt that the above scenario could also contribute to the lack of teachers' confidence and teachers' computer anxiety.

The issue of lack of confidence is considered as a major barrier to the uptake of ICT by teachers in the classroom (Becta, 2004). This problem is closely related to the following issues (Becta, 2004: p.8).

- the amount of personal access to ICT they have at home.
- the frequency of technical problems that occur in school.
- the lack of teachers' competence or teachers' perceptions of their competence.
- the quality of the training they received.

#### **7.2.4 Technology Content**

Respondents were asked how often they used the relevant ICT methods for delivering teaching and learning in classrooms and learning centres. It was noted that 67% of the respondents confirmed using PowerPoint, 47% using the interactive whiteboard, 47% using data projectors, 20% using stand-alone PCs for some students, 20% using network

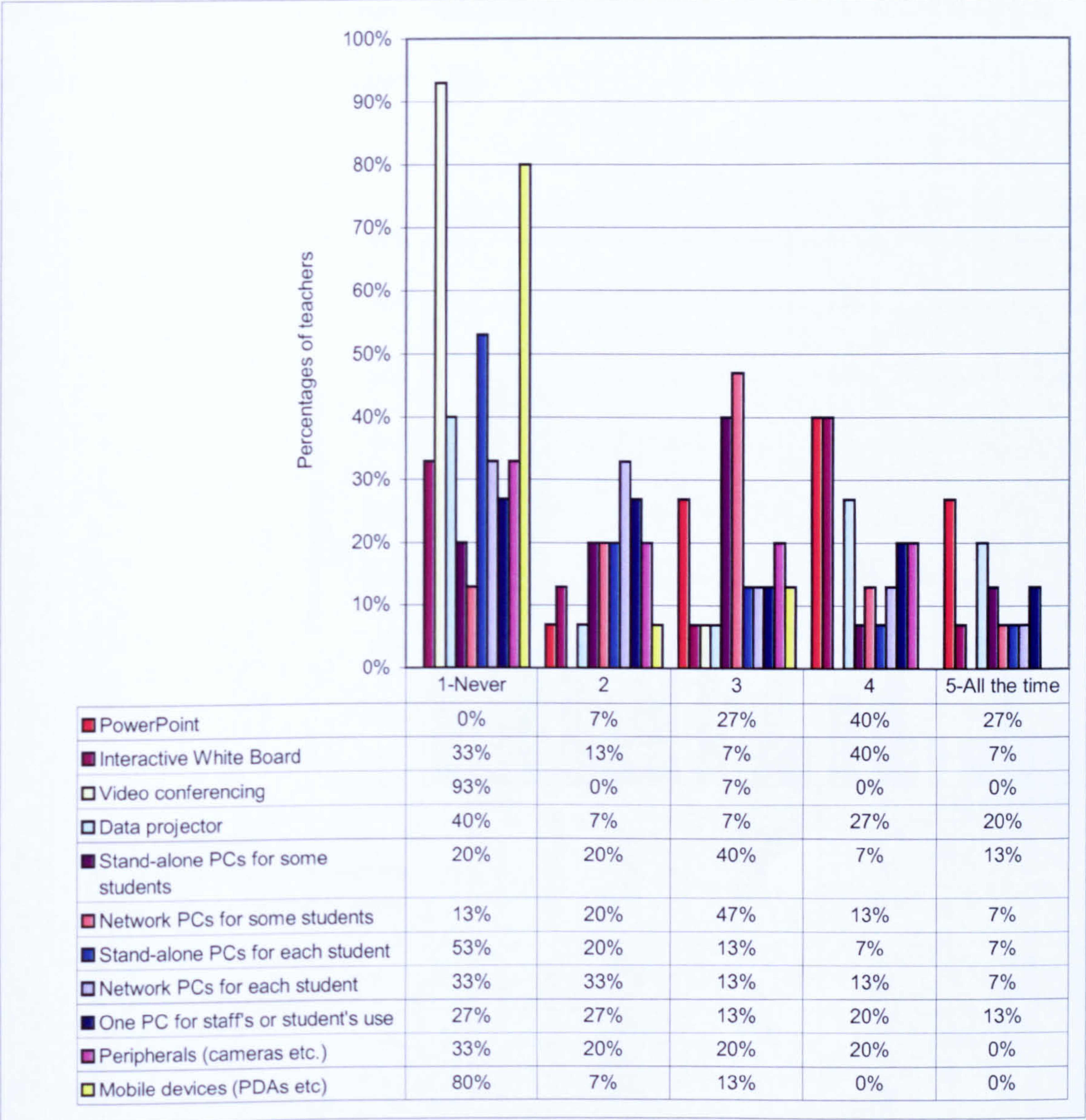


PCs for some students, 14% using stand-alone PC for each student, 20% using network PCs for each student, and 33% using one PC for the staff and students' use most of the time. Despite of the active use of certain ICT methods, it was revealed that 93% of the respondents never use video conferencing, 33% never use peripherals (such as cameras) and 80% of the respondents never use mobile devices such as PDAs for delivering teaching and learning in classrooms and learning centres (Figure 7.11).

The most significant points from this figure are that video conferencing and mobile devices are seldom used although PowerPoint, data projectors, interactive whiteboard and standalone PCs are most commonly used. The implications of this result are that although effective video conferencing is relatively new and provides opportunities for students to share learning at a distance, the full time nature many courses means that there is little demand. Although given the number of recent college merges, this could be a valuable technology to link different sites.

Mobile or *M-learning* is under development, but currently few applications are available for most mobile devices commonly used by students. However, this represents a valuable future direction for e-learning as it enables *any time, any place* learning.



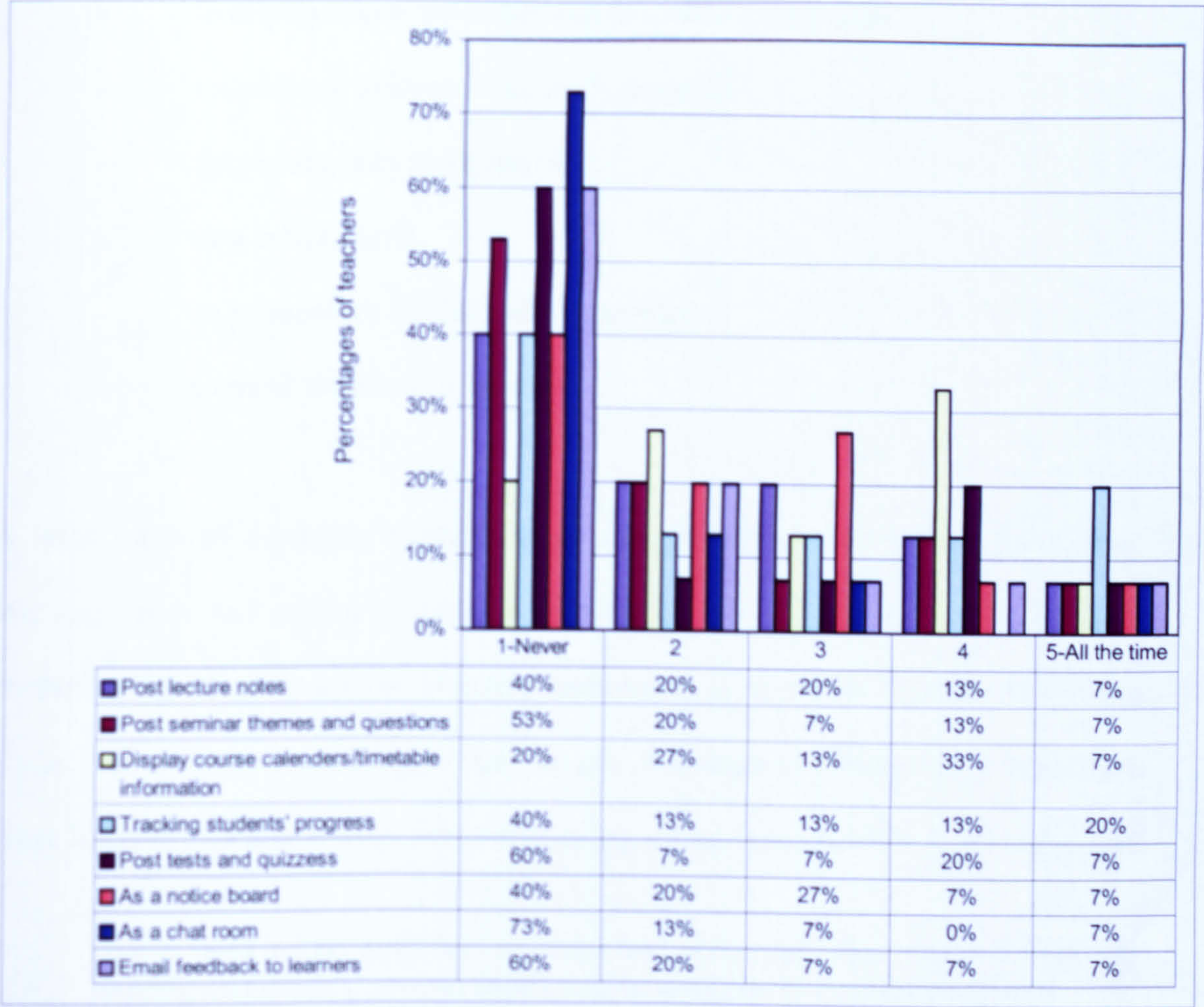


**Figure 7.11:** The extent to which ICT methods and equipments are used for delivering teaching and learning in classrooms and learning centres.

On the question of how often teachers used the college VLE and Intranet, it was noted that 20% of the respondents used them to post lecture notes, 20% used them to post seminar themes and questions, 40% used them to display course calendars and timetable information, 33% used them for tracking an individual student’s progress, 27% used them for posting tests and quizzes, 14% used them as a notice board, 7% used them as a



chat room for discussion purposes (with students) and 14% used them to email feedback to learners most of the time (Figure 7.12).



**Figure 7.12:** The extent to which the college VLE and Intranet are used on the courses that they teach.

The most important points in this section are:

- Certain ICT methods such as PowerPoint, interactive whiteboards and data projectors were actively used in the FE colleges to deliver teaching and learning in classrooms and learning centers.



- The colleges' VLE and Intranet were used by the teachers:
  - to post lecture notes
  - to post seminar themes and questions
  - to display course calendars and timetable information
  - for tracking individual student's progress
  - for posting tests and quizzes
  - as a notice board
  - as a chat room for discussion purposes
  - to email feedback to learners.

A wide range of e-learning methods were used by teachers to deliver and support learning inside and outside classrooms. It was felt that the use of various teaching methods might lead to a more effective learning as it caters for a range of learning styles. The rationale behind this is that, the use of a range of different ICT methods is more likely to appeal to a wider range of learning styles. Grasha (1984: p.51) argue that:

people need to be *stretched* to learn and stretching may mean deliberately creating a mismatch between their learning style and the teaching methods.

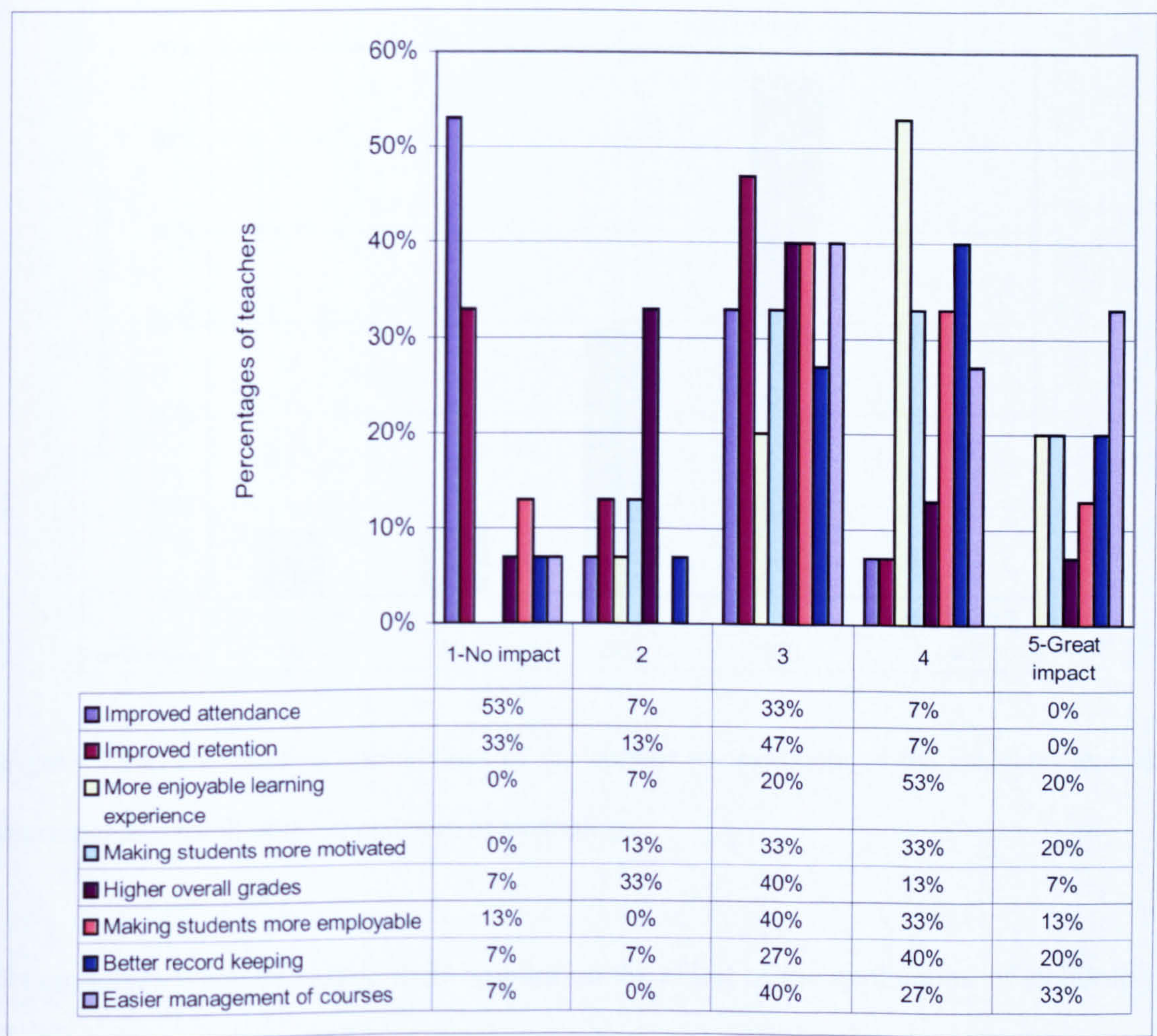
Gregorc's (1984) supports the above argument on the basis that even those individuals with strong preferences for particular learning styles preferred a variety of teaching approaches to avoid boredom.

### **7.2.5 Technology Impact and Learning Outcomes**

Respondents were asked their opinion on the positive impacts of using ICT and technology in relation to the following: improving certain administrative aspects of the FE colleges; and improving the student's personal learning experiences and



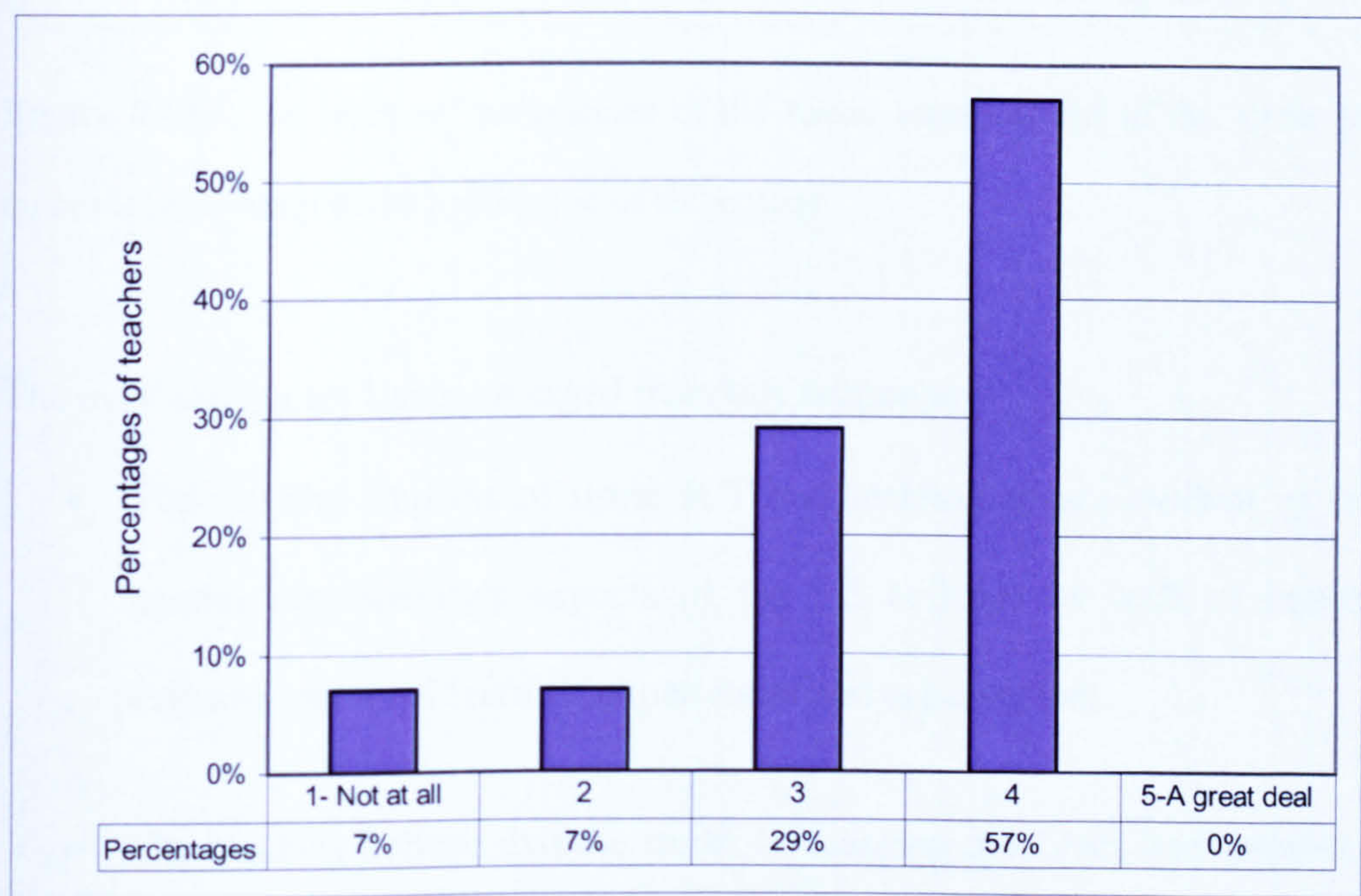
achievement. It was found that 73% of the respondents indicated that it created a more enjoyable learning experience, 60% indicated that it led to better record keeping, another 60% indicated that it contributed to easier management of courses, 53% indicated that it made students more motivated, 46% indicated that it made students more employable, 20% indicated that it helped the college to achieve higher overall grades, 7% indicated that it improved attendance while another 7% indicated that it improved the retention level of the FE colleges (Figure 7.13).



**Figure 7.13:** The teachers’ perceptions of the positive impacts of using ICT and technology in FE colleges.



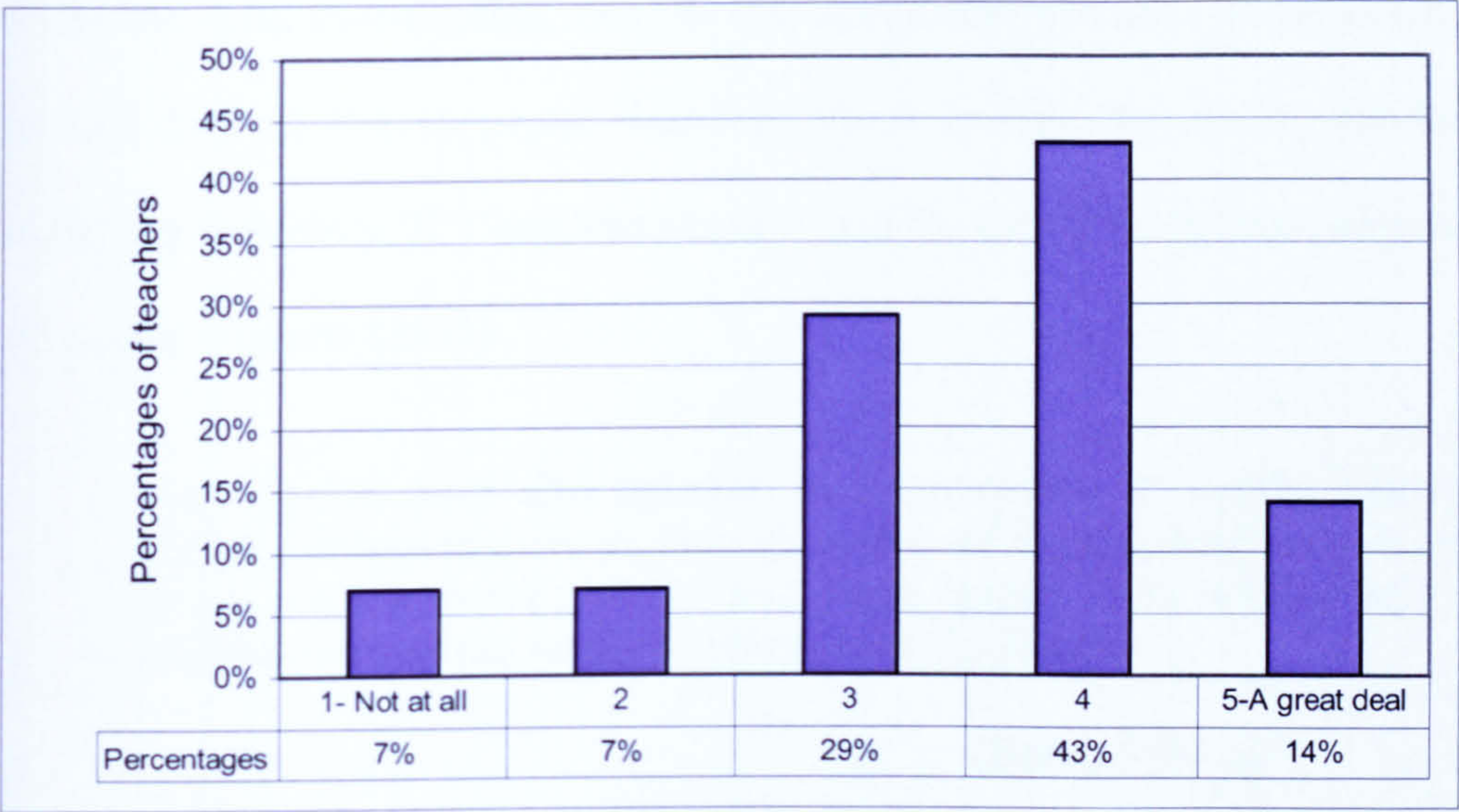
It was noted from this investigation that 29% of the respondents agreed that the students' learning outcomes had improved with another 57% suggesting that they (students' learning outcomes) had improved quite a lot due to application of technology in FE colleges. Despite of the positive impacts recorded above, 7% of the respondents indicated that the application of technology had only resulted in a slight improvement, with another 7% suggested that it did not improve the students' learning outcomes (Figure 7.14)



**Figure 7.14:** The teachers' perceptions of the current improvement of the students' learning outcomes as a result of the application of technology.

Respondents were also asked their opinion on the effect of the application of technology on the future improvement of the students' learning outcomes. It was noted that 29% of the respondents agreed that it will improve, 43% agreed that it will improve quite a lot, with another 14% suggesting that the students' learning outcomes will improve a lot (a great deal) because of the application of technology in the future (Figure 7.15).





**Figure 7.15:** The teachers’ perceptions of the future improvement of the students’ learning outcomes as a result of the application of technology.

The most significant issues emerged from this section are:

- The positive impacts of using ICT and technology are evident in improving: certain administrative aspects of the FE colleges as well as improving the students’ personal learning experiences and achievement.
- The teachers believe that the students’ learning outcomes had improved quite a lot as a result of the application of ICT and technology in FE colleges.

Discussion on the above issues relates to the effects of ICT on attainment. The investigation on the effects of ICT on attainment carried out by Becta (2004) have shown that:

the positive impact on attainment is greatest for those ICT resources, which have been embedded in some teachers’ practices for a long time.

(Becta, 2004: p5).



From the same investigation, there is also substantial evidence of the contribution of specific uses of ICT to pupils' learning. These include the use of simulations and modelling in Science, ICT and Mathematics, and the use of Word Processing in English.

According to Becta (2004):

many studies have also reported an improvement of pupils' motivation and attitudes to learning, shown through: improved commitment to the learning task; greater interest in the subject; and pupils taking more responsibility for their learning and making sustained efforts in difficult tasks.

(Becta, 2004: p.6)

Becta (2004: p7-8) has also identified the most important factors that affect attainment: the teacher's pedagogies; the use of ICT in different school settings; the use of ICT in informal settings; ages of the pupil; and social cultural backgrounds of the students. Teachers' pedagogies were viewed to have large impacts on pupils' attainment as they influence:

the selection of the ICT resources; the preparation of the lessons; the way the ICT resource is used with pupils in lessons; the level of guidance and intervention; and the level of ICT integration within the teachers' subject.

(Becta, 2004: p.7)

### **7.3 Findings of the Observational Studies**

The aim of this section is to present the findings of the semi-structured non-participant observations; which were carried out as part of the case study investigation, investigating the teachers' attitudes and perceptions on the application of ICT and e-learning materials used in post-compulsory education in the West Midlands. As has been pointed out in Chapter 3, the main objective for carrying out the observational studies was to witness the actual application of ICT and e-learning materials to teaching



and learning in the selected FE colleges. Twelve teaching sessions from three different FE colleges were observed for this investigation. Please refer to the Table 7.1 for the details of the classroom observations and the pilot study carried out prior to the actual observational studies. This section will only discuss the observational studies’ overall findings that relate to the teacher’s activities; findings on the learner’s activities will be reported in Chapter 8, under Section 8.3.

**Table 7.1: Details of the observational studies**

	Venue and Duration	Curriculum Area	Topic	ICT-Based Resources Used	Mode of Delivery of E-Learning Materials Used	Remarks
Pilot observation	Classroom (90 minutes)	Science	Materials	PC, IWB, TV, Ceiling projector	Application software (PowerPoint), VLE (Moodle), Video	Teaching session
Observation 1	Classroom (80 minutes)	Sociology	Poverty	PC, IWB, Ceiling projector	VLE (Moodle), Application software (PowerPoint)	Teaching session
Observation 2	Classroom (70 minutes)	Sociology	Nationality	PC, IWB, Ceiling projector	VLE (Moodle), Application software (Word and PowerPoint)	Teaching session
Observation 3	Classroom (75 minutes)	Physical Education	Motion and Movement	PC, IWB, TV, Ceiling projector	Intranet, Application software (PowerPoint), Video	Teaching session
Observation 4	Classroom (10 minutes) Computer Lab (50 minutes)	English Literature	Coursework	PC, IWB, Ceiling projector	Internet, Intranet, Application software (Word and PowerPoint)	Coursework session
Observation 5	Classroom (60 minutes)	English Literature	William Shakespeare (Othello)	PC, IWB, Ceiling projector	Intranet, Application software (Word and PowerPoint)	Teaching session
Observation 6	Classroom (80 minutes)	English Literature	Essay Structure	PC, IWB, Ceiling projector, Wireless keyboard, Wireless mouse	Intranet, Application software (Word)	Teaching session



Observation 7	Classroom (20 minutes) Computer Lab (25 minutes)	Physical Education	Motion	PC, IWB, Ceiling projector, Video camera	Internet, Video, Application software (PowerPoint)	Coursewor k session
Observation 8	Language Lab (65 minutes)	Modern Foreign Language (German)	Life styles	PC, Satellite TV	Internet, Intranet, Application software	Listening module
Observation 9	Classroom (75 minutes)	English Literature	Terminology and Performance	PC, IWB, Ceiling projector, Wireless keyboard, Wireless mouse	Intranet, Application software (Word)	Teaching session
Observation 10	Language Lab (65 minutes)	Modern Foreign Language (German)	Listening	PC, Satellite TV	Internet, Intranet, Application software (Word)	Coursewor k session
Observation 11	Classroom (70 minutes)	Sociology	Evaluating a research	PC, IWB, Ceiling projector	VLE (Moodle), Application software (PowerPoint)	Teaching session
Observation 12	Classroom (75 minutes)	Chemistry	Acid and Base	PC, LCD projector,	Application software (PowerPoint)	Teaching session

Results from the observational studies were analysed into three different areas: the teacher's attitudes towards ICT and technology in teaching and learning; the extent to which ICT and technology were used for delivering teaching and learning (in the classrooms); and the teacher's confidence level to deliver and support learning with ICT and technology.



### **7.3.1 The Teachers' Attitudes towards ICT and Technology in Teaching and Learning**

It was noted that in general, the teachers showed positive attitudes towards ICT and technology in the teaching and learning environment. The teachers were enthusiastic; showed their genuine interests and full commitments; and seemed to be enjoying themselves teaching with ICT. The participants (teachers) displayed their skills and self-confidence to deliver teaching and learning with ICT and were ready to overcome any *unforeseen circumstances*. The teachers were found to give their full support towards their students and were always willing to share their knowledge and ICT skills.

### **7.3.2 The Extent to which ICT and Technology were Used for Delivering Teaching and Learning**

The findings on the extent to which ICT and technology were used for delivering teaching and learning in this section is limited to the use of ICT and technology in the classrooms, computer's lab, and the language labs (the actual venues where the observational studies were carried out); and not otherwise. It was noted from the classroom's observations that, in most cases, ICT and technology were mainly used as support and supplementary to traditional teaching and learning. Blended learning approach was common and was widely practised by the teachers in FE colleges; and seemed to be favourably accepted by the students. Both the teachers and the students seemed to be enjoying themselves using ICT and technology as part of their teaching/learning tools.

Throughout the observational studies, it was observed that ICT and technology were used for a whole session and not part of a session; and they were used with the whole class as well as in groups (it all depends on the type of learning activities). For normal



teaching sessions, ICT and technology were used with the whole class, but for coursework sessions, they were normally used in groups.

It was also observed that ICT and technology were been actively used by the teachers in the classrooms, computer labs, language labs for a variety of learning activities which include the following:

- The teachers used the network PCs, IWB, TV, ceiling projectors, wireless keyboards, wireless mouse, video cameras, satellite TV, LCD projector, videos and Applications software for course delivery and as presentation device.
- The teachers used the college Intranet to channel information and exercises to their students; and also to select file or to look for the sessions' tasks which were prepared in advance.
- The teachers used the VLE to access the learning materials which were then used as course materials. The VLE was also used to conduct online quizzes and online assessments/ exercises.
- The teachers used the Internet to find relevant information and to access to free online materials to teach their students.
- The Applications software was very popular for typing coursework (Word), as presentation device (PowerPoint) and also for preparing course materials. The teacher from the Modern Foreign Language department for example, used the applications software for listening comprehension and listening exercises.
- The teacher from the Physical Education Department on the other hand, used videos, tv, movies and Applications software to show pictures, display texts,



diagrams, examples and video clips; as variations to teaching and to increase the learner's engagement.

### **7.3.3 The Teachers' Confidence Level to Deliver and Support Learning with ICT and Technology**

It was noted that the teachers were confident to deliver and support learning with ICT and technology and they had the required ICT skills and knowledge to cater for these objectives. Their competence level to use the various ICT-based learning resources were also high and they were always willing to help students with ICT difficulties. In most cases the teacher managed the classroom by himself/herself except for the sessions in the language lab where they have technicians/lab assistant to assist them on certain technicalities.

To summarise what have been observed during the observational studies, it was noted that:

- the barrier associated with the lack of confidence and teachers' computer anxiety did not exist among teachers participated in the classroom observations.
- students were observed to be increasingly placing demands on teachers and expecting them to be knowledgeable in the area of computer usage.
- there was no any incidence of computer anxiety during the observation periods.
- technical related problems was not a barrier to the teachers because of the following: the teachers are competence to use computers, ICT based learning resources and technology related equipments; and technical supports were



always available in the computers lab and the language lab (they have technicians/lab assistants to assist them on certain technicalities).

- teachers showed positive attitudes towards ICT and technology; enthusiastic and committed in their works; and always ready to give support to their students.

## **7.4 Conclusions**

This chapter has presented the findings on the teachers' attitudes and perceptions on the application of ICT and e-learning materials used in post-compulsory education. The most significant findings that emerged were as follows:

- The majority of teachers in FE colleges (80%) considered themselves enthusiastic towards ICT and technology in general and in teaching and learning (Figure 7.1). They believed that ICT and technology are valuable and essential and particularly useful for communicating with colleagues, for tracking learners' progress, for record-keeping and registrations and for assessment purposes (Figure 7.3). Despite of the problems with the integration of e-learning in colleges, the fact that learners are enthusiastic suggests that future developments will be implemented in classroom and that teachers will continue to develop their practice in this area.
- ICT and technology were found to be very popular among teachers in FE colleges since 80% of the respondents confirmed using them for classroom teaching most of the time, with 27% used them constantly. ICT and technology were also found to be popular and frequently used by the respondents in their office at college, at home, in workshops and learning centres (Figure 7.4). This



reinforces the previous point. The current level of use is high and their enthusiasm is likely to ensure that this continues with consequent benefit, to pedagogy and learning.

- The new learning technology has certainly had an impact on the way teachers work over the last five years as 27% of the respondents indicated that it has completely changed the way they work while another 66% considered the way they work has changed quite a lot over the last five years as a result of the new learning technology (Figure 7.6). The new learning technology has changed the teachers' practices in the following manner:
  - More varied resources due to availability of Internet.
  - Resources are more accessible to learners enabling more humanistic approaches.
  - The use of PowerPoint has helped teachers to structure their lessons and have the content available for learners and to integrate multimedia such as audios and videos.
- The teachers' satisfaction level was found to be quite high in relation to the IT support received by them (Figure 7.7); in relation to the courses that were designed to improve their technology skills (Figure 7.8); and also in relation to the courses that were designed to help them use technology in their work (Figure 7.9). As support levels are high, lack of support is not a major issue. If support was lacking, this may provide a barrier to teachers using e-learning.
- The teachers' confidence level to deliver and support learning with ICT and technology was found to be high with 87% of the respondents considered themselves prepared compared to only 13% who were less prepared; and none of



the respondents indicated that they were not prepared to deliver and support learning with ICT and technology (Figure 7.10).

- The use of ICT and technology in FE colleges was viewed to have positive impacts by the respondents as it creates a more enjoyable learning experiences, leads to better record-keeping, contributes to easier management of courses, making students more motivated, making students more employable and helping the college to achieve higher overall grades (Figure 7.13), emphasising the value of continuing to develop e-learning approaches.
- The majority of the respondents believed that the students' learning outcomes had improved because of the application of technology and they predicted the same trend would continue in the future (Figure 7.14 and 7.15).



## **Chapter 8**

### **Findings: The Learners' Attitudes and Perceptions on the Application of ICT and E-learning Materials Used in Post-compulsory Education**

#### **8.1 Introduction**

The aim of this chapter is to present the findings on the learners' attitudes and perceptions on the application of ICT and e-learning materials used in the selected FE colleges in the West Midlands.

The results of the learners' attitudes and perceptions reported in this chapter are based on evidence received from the Learners' Questionnaires collected during the case study investigation in three FE colleges. A total of 153 students from three different FE colleges completed the Learners' Questionnaires which were structured, closed-questioned questionnaires, formatted using the rating scales. These colleges were selected from the nine FE colleges participated in the semi-structured interviews conducted earlier. The criteria for the selection of these colleges were mainly based on the active use of e-learning materials in their curriculum areas. The sample was chosen from the same departments involved in the previous study, investigating the teachers' attitudes and perceptions on the applications of ICT and e-learning materials used in post-compulsory education, the results of which have been reported in Chapter 7. Teaching groups for which ICT was used regularly were included in order to provide



adequate opportunities for learners to comment on their experiences. Responses from the Learners' Questionnaires were analysed and charted using Microsoft Excel. Detailed classroom observations were used to track how selected learners were engaging with ICT-based learning resources. The activity of the learners was recorded, as was the activity of the teachers for comparative purposes (see Chapter 3 for details of the observation process). Twelve teaching sessions from three different FE colleges were observed. The findings from these observations and the Learners, Questionnaires will be used to evaluate some of the data presented in this chapter.

## **8.2 Research Findings**

The results from the case study investigation into learners' attitudes and perceptions on the application of ICT and e-learning materials used in FE colleges were analysed under five broad categories: technology usage; technology support; technology resources; technology content; and technology impact and learning outcomes. With the exception of technology impact and learning outcomes, which examine the learners' perceptions of the technology impact and learning outcomes in relation to the increasing use of ICT and online learning, each category was further divided into several areas. Technology usage for example dealt with the following areas: the learners' perceptions of the frequency with which different ICT-based resources were used by their teachers; the learners' perceptions of the frequency with which different ICT-based resources were used by them; the learners' perceptions of how useful they found the different ICT-based resources as part of their learning; and the learners' perceptions of the extent to which their skills have been improved by their personal use of technology outside



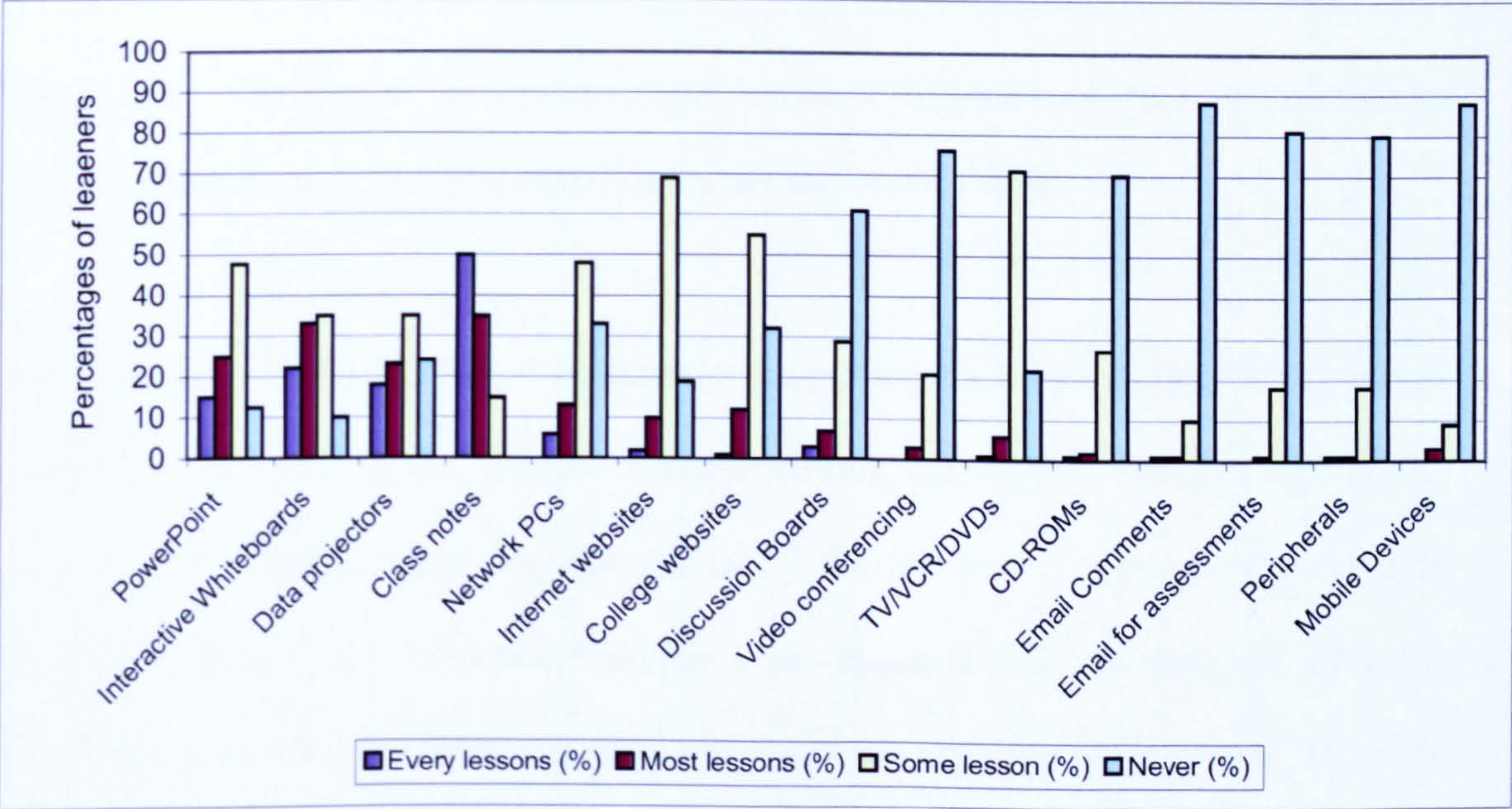
college work. Technology support on the other hand dealt with the learners' perceptions of the technology support they received in the classroom; the learners' perceptions of the technology support they received in learning centres; the learners' perceptions of the technical support they received in the college; and the type of technical support available to learners in FE colleges. Five areas were examined in the third category (technology resources): the learners' perceptions of the *availability* of technology resources in the college; the learners' perceptions of the *accessibility* of technology resources in the college; percentages of learners who used computers at home for studying; percentages of learners who accessed materials through the VLE from home and work place as well as at college; and the learners' perceptions of the problems of accessing the VLE from home. As for the fourth category (technology content), two interesting issues were raised: firstly, the learners' perceptions of the VLE content of the courses that they accessed independently through the Internet compared to other contents (e.g. textbooks, TV and videos); and secondly the learners' perceptions (in general) on the electronic content of the courses that they accessed independently. The phrase *frequency of use* is used in this Chapter to mean *learners' perceptions of frequency of use* for brevity.

### 8.2.1 Technology Usage

On the question of how often their teachers used the different ICT-based resources as part of their teaching, it was noted that only certain ICT-based resources were perceived by the learners to be frequently used by their teachers. PowerPoint, Interactive Whiteboards, Data Projectors and class notes were among resources, which were frequently used as reflected in Figure 8.1. Class notes was the most frequently used item

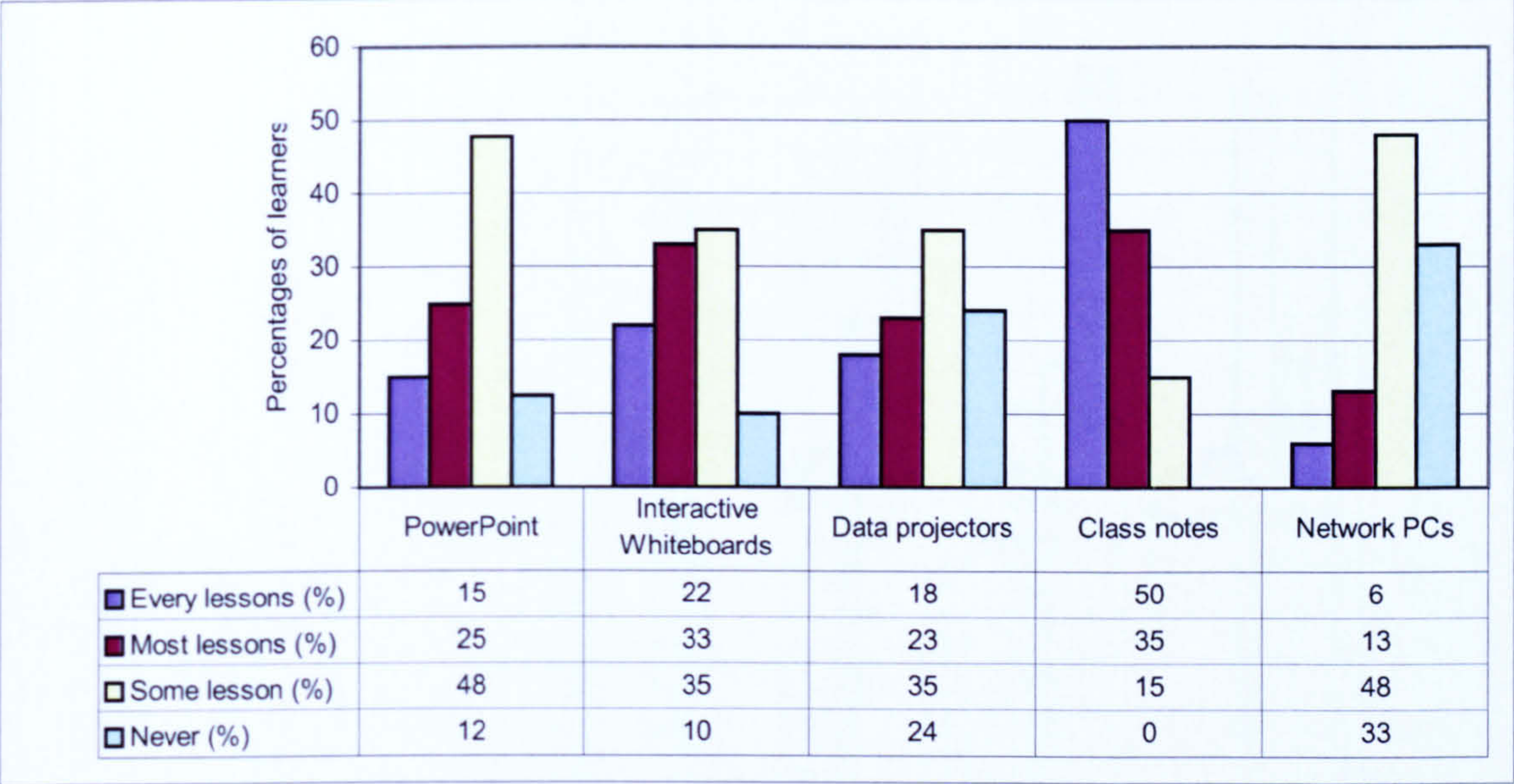


as 50% of the respondents indicated that their teachers used them in every lesson while another 35% suggested that their teachers used them in most lessons. The second most popular item was the Interactive Whiteboard (22% every lessons, 33% most lessons), followed by Data Projectors (18% every lessons, 23% most lessons) and PowerPoint (15% every lessons, 25% most lessons) as indicated in Figure 8.1.1. A summary of all the data is presented in Figure 8.1 and then selected aspects are presented in Figures 8.1.1, 8.1.2 and 8.1.3 for clarification purposes.



**Figure 8.1** The learners’ perceptions of the frequency with which different ICT-based resources were used by their teachers.

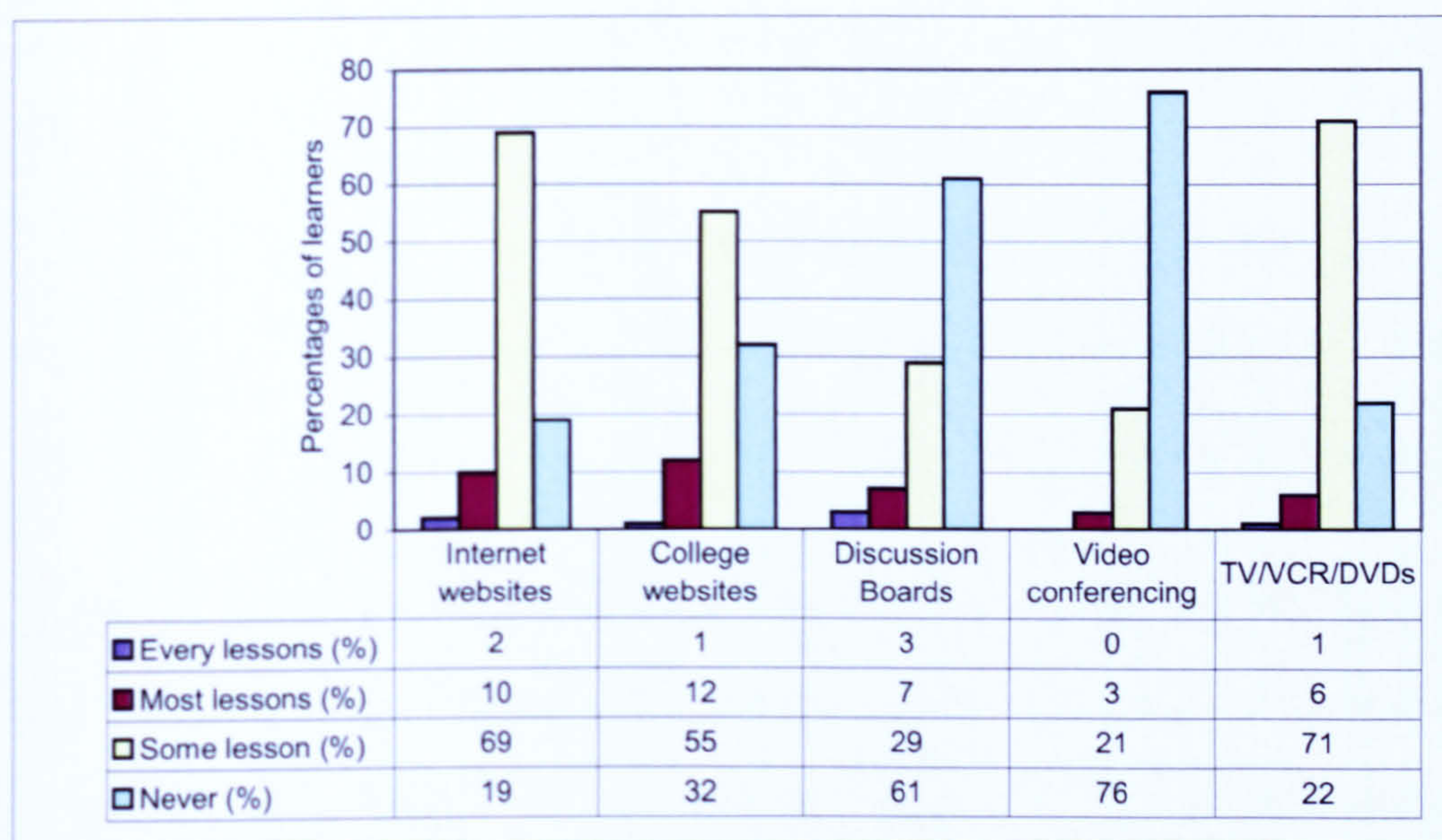




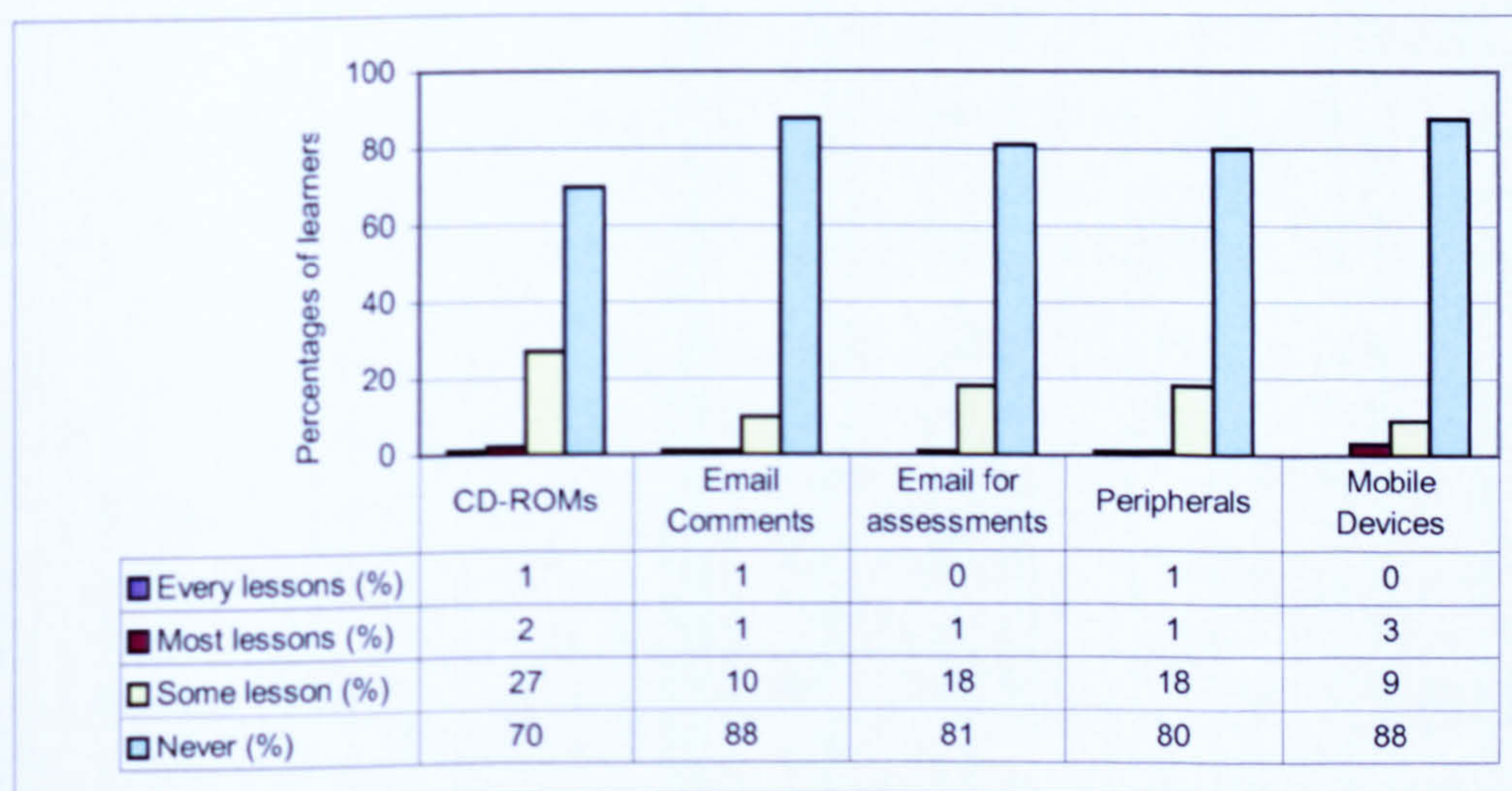
**Figure 8.1.1** The learners’ perceptions of their teachers’ frequency of using the PowerPoint, Interactive Whiteboards, data projectors, class notes and network PCs.

Although some of the ICT-based resources were not heavily used, certain items such as TV/VCR/DVDs (71%), the Internet websites (69%), the college websites (55%) and networked PCs (48%) were frequently used by the teachers in some lessons (Figure 8.1.1 and Figure 8.1.2). Evidence from this study has indicated that discussion boards, CDROMs, and video conferencing were not frequently used by the teachers; while the least popular ICT-based resources were email comments, mobile devices (PDAs, etc.), email for assessments feedback, and peripherals (cameras, etc) as reflected by Figure 8.1.2 and Figure 8.1.3.





**Figure 8.1.2** The learners' perceptions of their teachers' frequency of using the Internet websites, college websites, discussion boards, video conferencing and TV/VCR/DVDs.



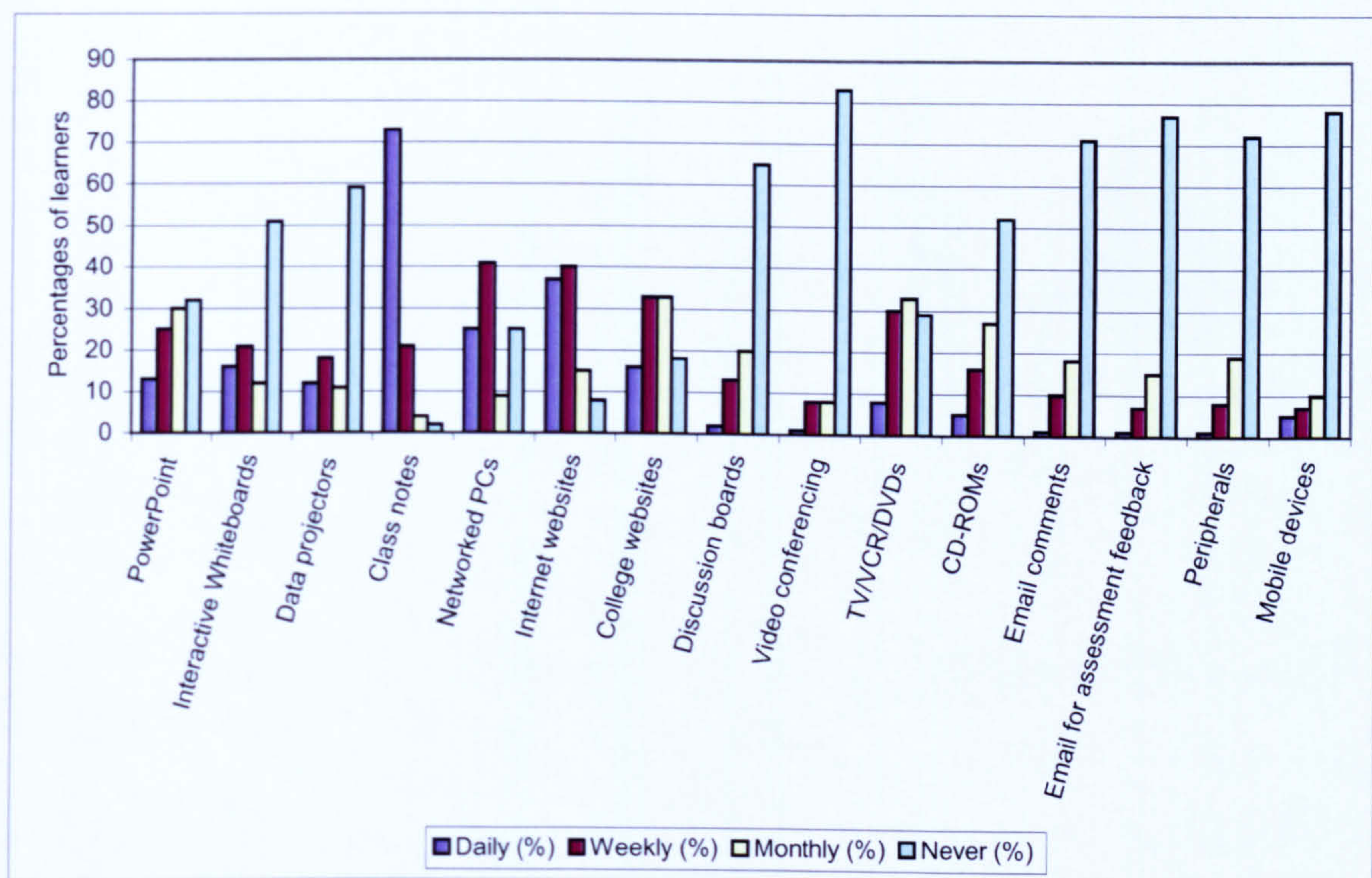
**Figure 8.1.3** The learners' perceptions of their teachers' frequency of using the CD-ROMs, email comments, email for assessments feedback, peripherals (cameras, etc.) and mobile devices (PDAs, etc.).



Respondents were also asked for their perceptions of how often do they used the ICT-based resources discussed earlier as part of their learning. In relation to this, it was found that the students' perception was that certain ICT-based resources were more frequently used by themselves, rather than their teachers (Figure 8.2). The data in Figure 8.2 are summarised in Figures 8.2.1, 8.2.2 and 8.2.3 for clarification purposes.

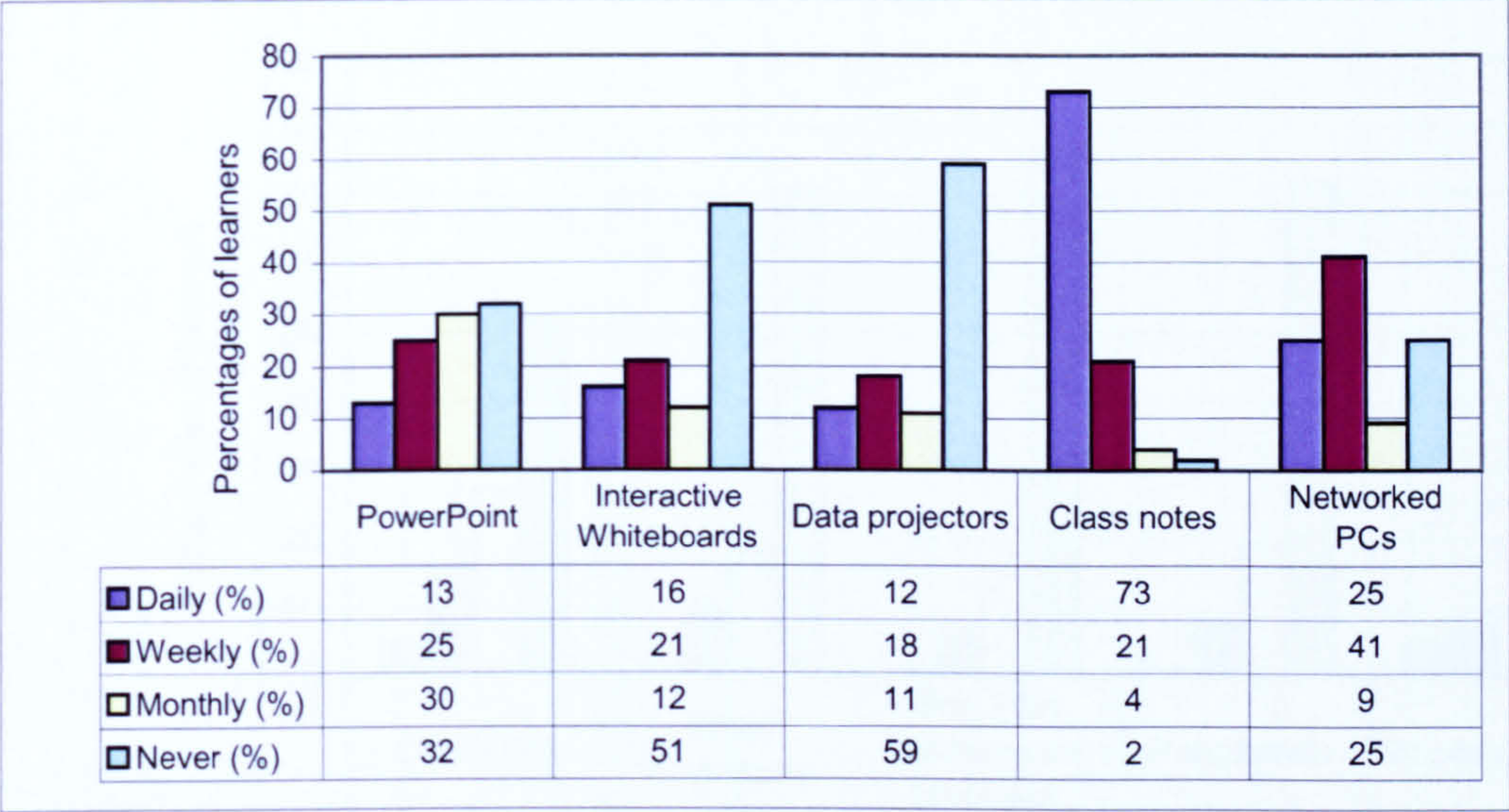
It was noted that class notes produced by teachers were the most frequently used item as 73% of the respondents confirmed using them daily. Apart from class notes, Internet websites (37%), network PCs (25%), Interactive Whiteboards (16%), the college websites (16%), PowerPoint (13%) and data projectors (12%) were among the resources which were used by the learners on a daily basis. As for TV/VCR/DVDs, although only 8% of the respondents confirmed using them daily, this study shows that 30% of them indicated that they used them weekly. At the same time it was noted that 41% of the respondents used networked PCs, 40% used the Internet websites, 33% used the college websites, 25% used PowerPoint, 21% used Interactive Whiteboards and another 21% used class notes on a weekly basis as reflected by Figure 8.2.1 and 8.2.2. The results from the Learners' Questionnaires have also suggested that certain items like discussion boards, video conferencing, CDRoms, email comments, email for assessment feedback, peripherals and mobile devices were not frequently used by the learners, since less than 10% of the respondents used them daily. Apart from that 65% of the respondents confirmed that they never used discussion boards, 83% never used video conferencing, 71% never used email comments, 77% never used email for assessment feedbacks, 72% never use peripherals (cameras, etc), and 78% never used mobile devices (PDAs, etc) as part of their learning (Figure 8.2.2 and 8.2.3).



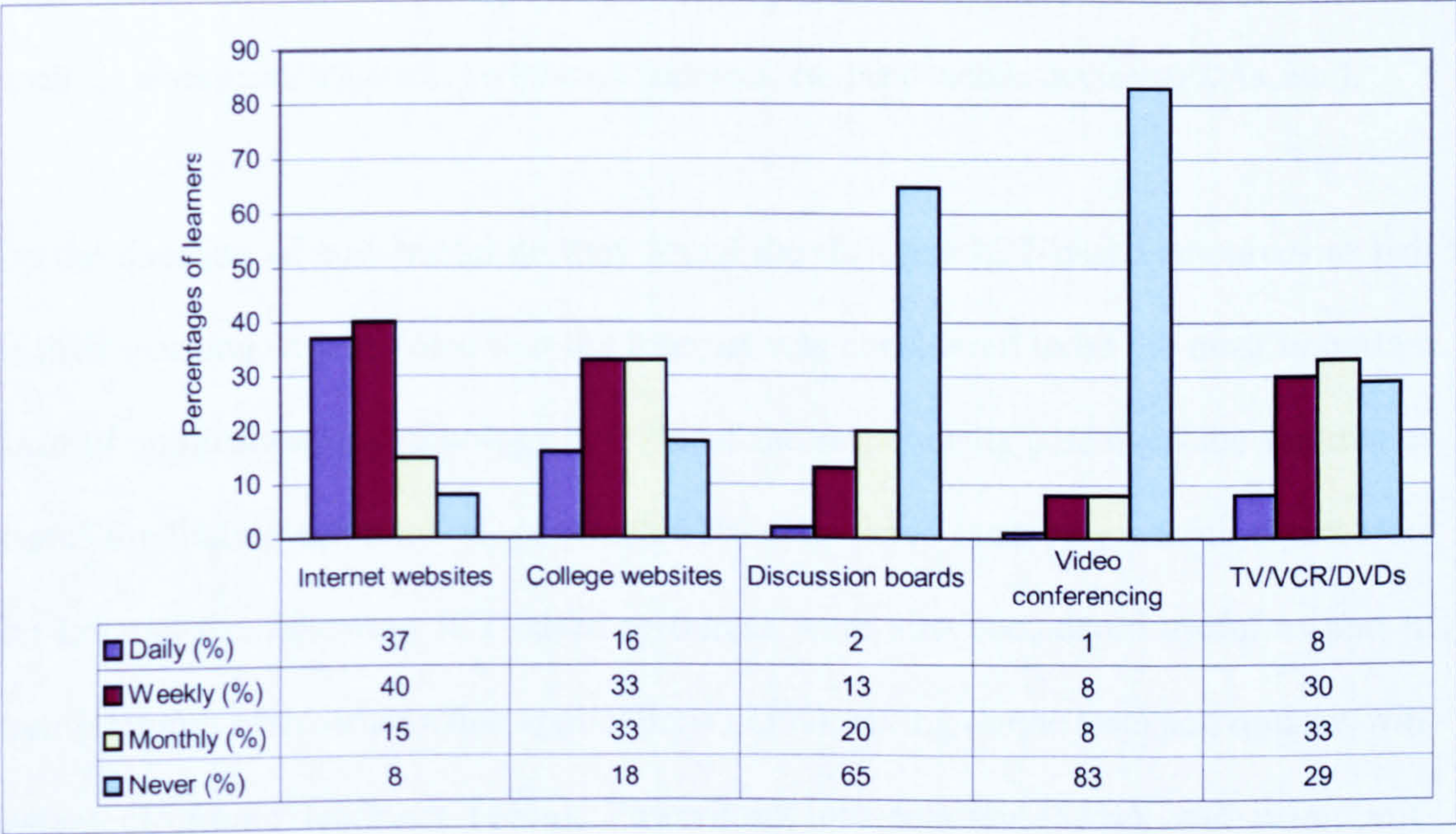


**Figure 8.2** The learners’ perceptions of the frequency with which different ICT-based resources were used by them.



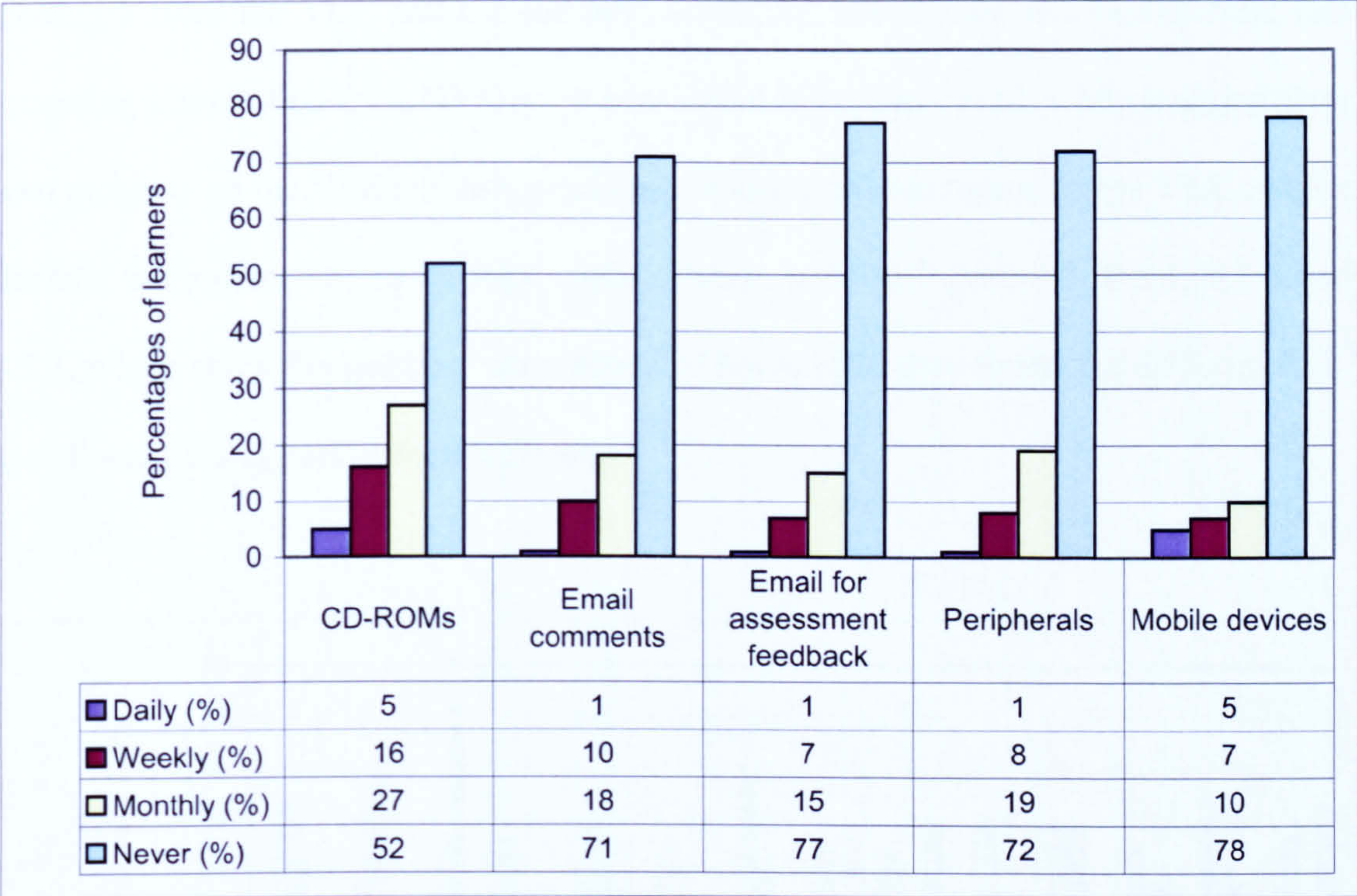


**Figure 8.2.1** The learners’ perceptions of their frequency of using PowerPoint, Interactive whiteboards, data projectors, class notes and network PCs.



**Figure 8.2.2** The learners’ perceptions of their frequency of using the Internet websites, college websites, discussion boards, video conferencing and TV/VCR/DVDs



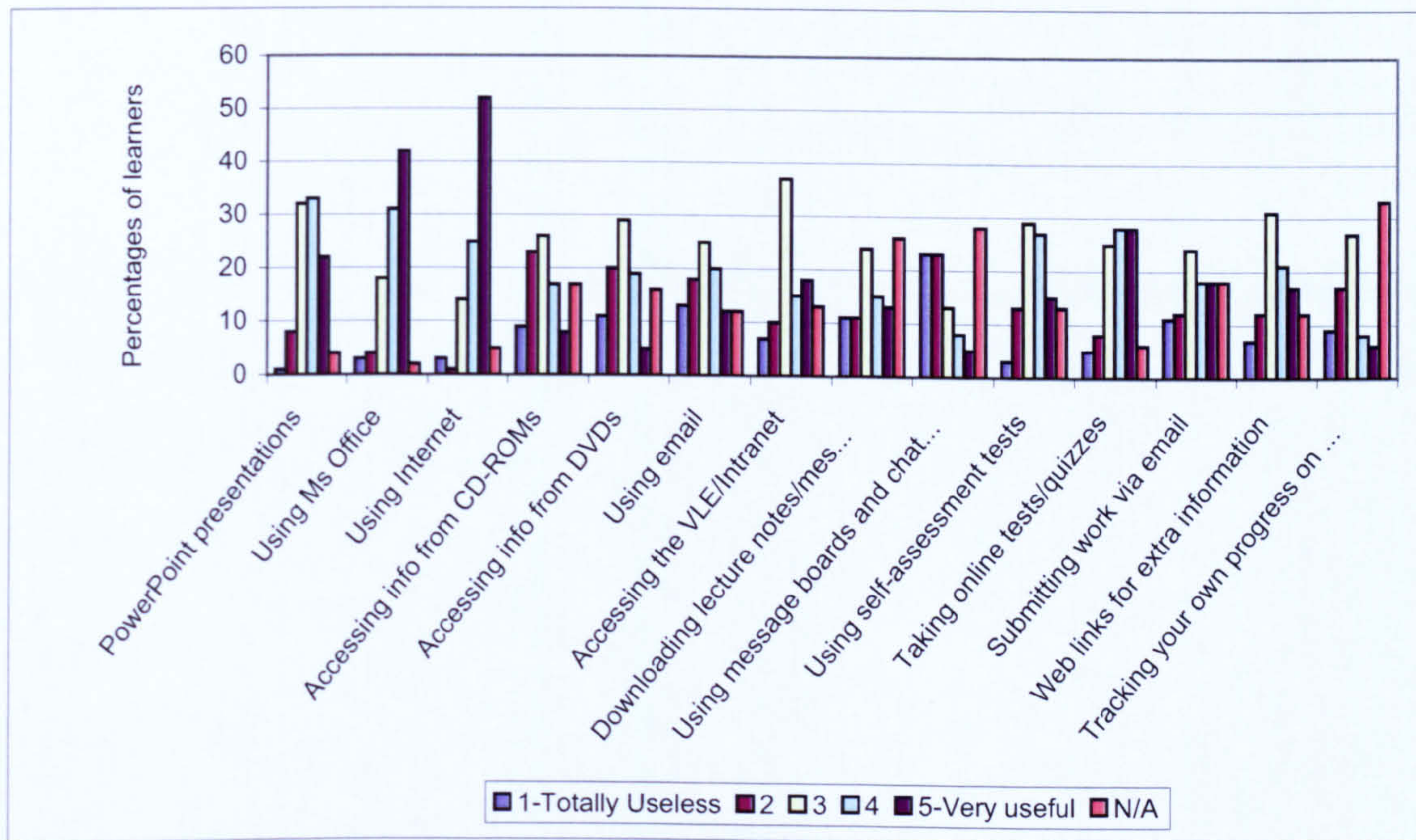


**Figure 8.2.3** The learners’ perceptions of their frequency of using CDRoms, email comments, email for assessment feedback, peripherals (cameras, etc.) and mobile devices (PDAs, etc.).

On the question of how useful do they found the different ICT-based resources as part of their learning, it was noted that the Internet was considered to be the most important form of application of technology as 77% of the respondents perceived the Internet as useful for finding information, of which 52% considered it as very useful. Apart from the Internet the following ICT-based resources were also considered useful as part of their learning: Microsoft Office applications (73%); taking online tests and quizzes with instant electronic feedback (56%); PowerPoint presentation (55%); and using self-assessment tests (42%). Based on the questionnaires’ results it was revealed that following the web links provided for extra information; submitting work via email; accessing the VLE and the Intranet; using email; downloading lecture notes and

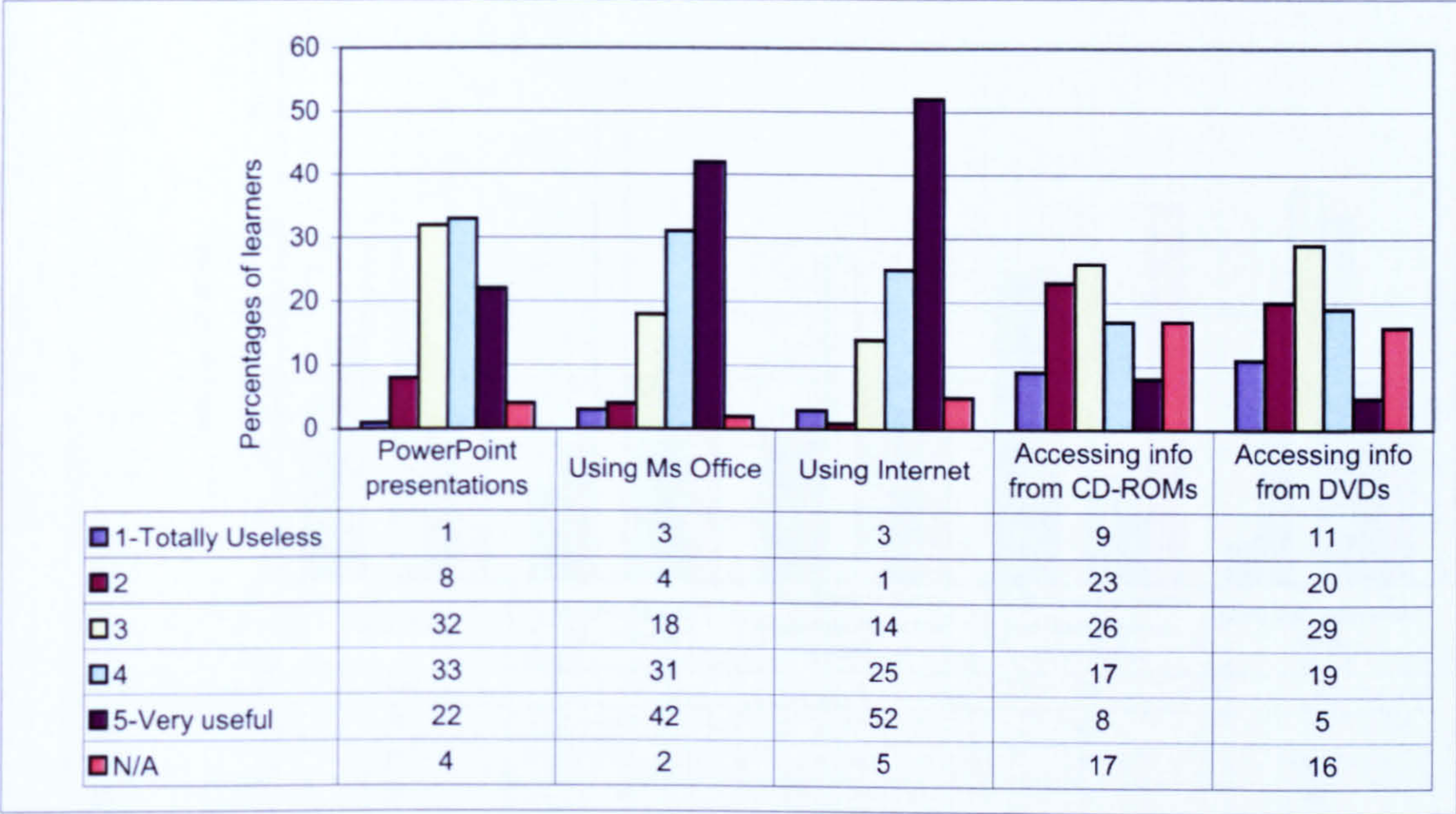


messages from the VLE and the Intranet; accessing information from CDROMs; and accessing information from DVD were considered to be less useful, while tracking their own progress on the VLE and using message boards and chat rooms on the VLE and the Intranet were perceived to be least useful. Please refer to Figure 8.3, 8.3.1, 8.3.2 and 8.3.3, which show the learners' perceptions of how useful they found the different ICT-based resources as part of their learning.



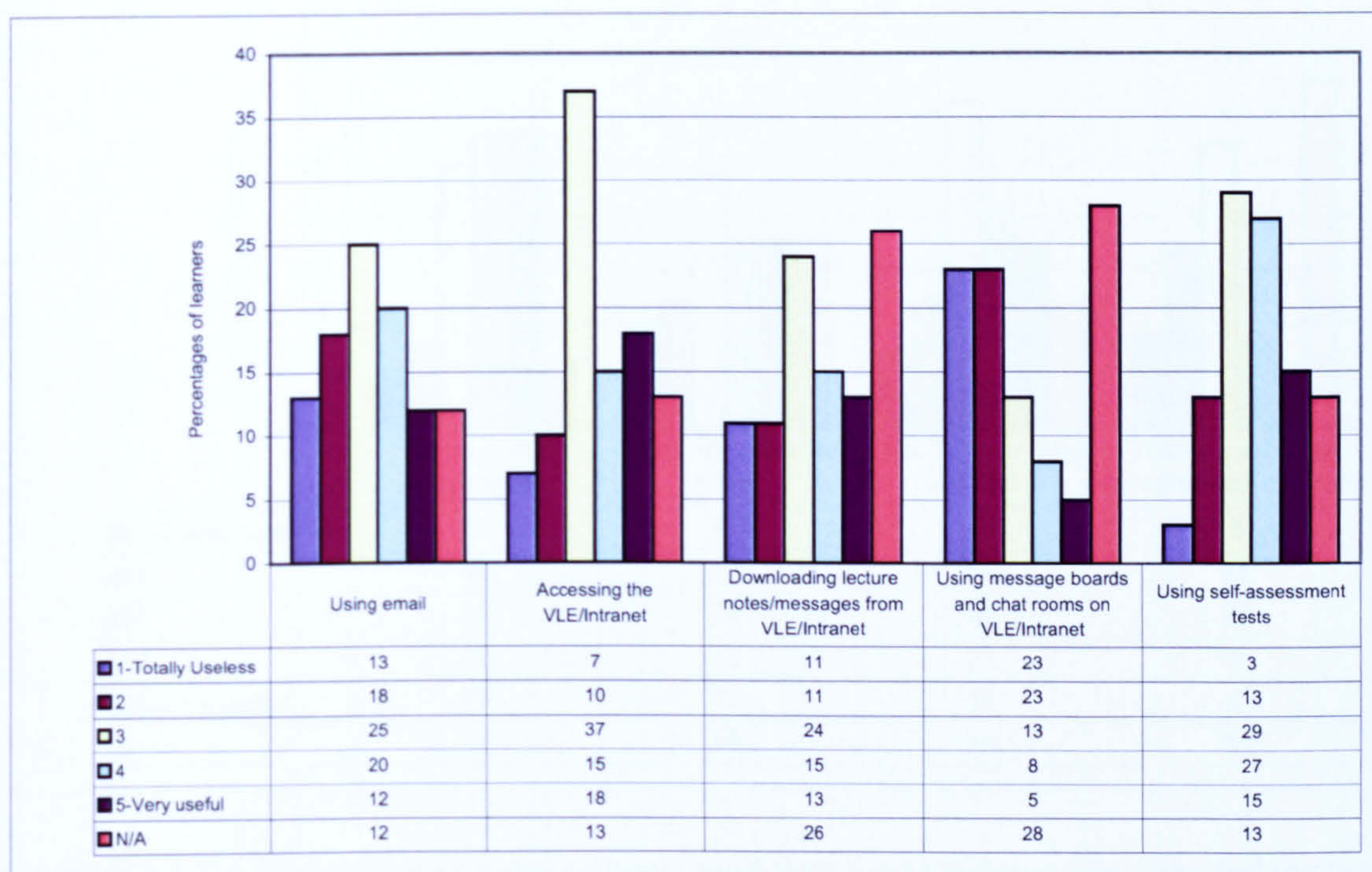
**Figure 8.3** The learners' perceptions of how useful they found the different ICT-based resources as part of their learning.





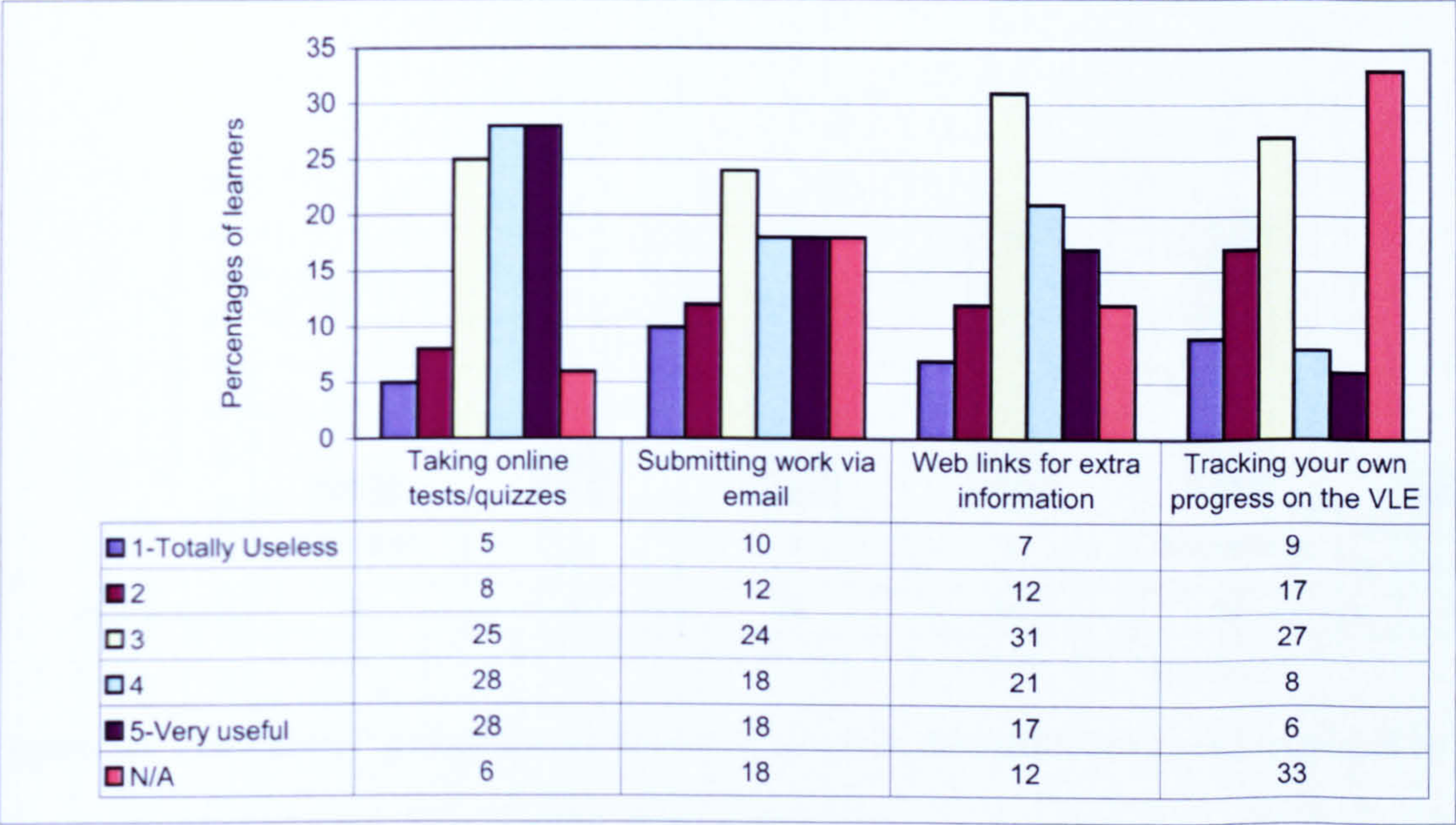
**Figure 8.3.1** The learners’ perceptions of how useful they found the use of PowerPoint presentations, MS Office applications, the Internet and accessing information from CDROMs and DVDs as part of their learning.





**Figure 8.3.2** The learners’ perceptions of how useful they found the use of email, accessing the VLE and the Intranet, downloading lecture notes and messages from the VLE and the Intranet, using message boards and chat rooms on the VLE and the Intranet, and using self-assessment tests as part of their learning.

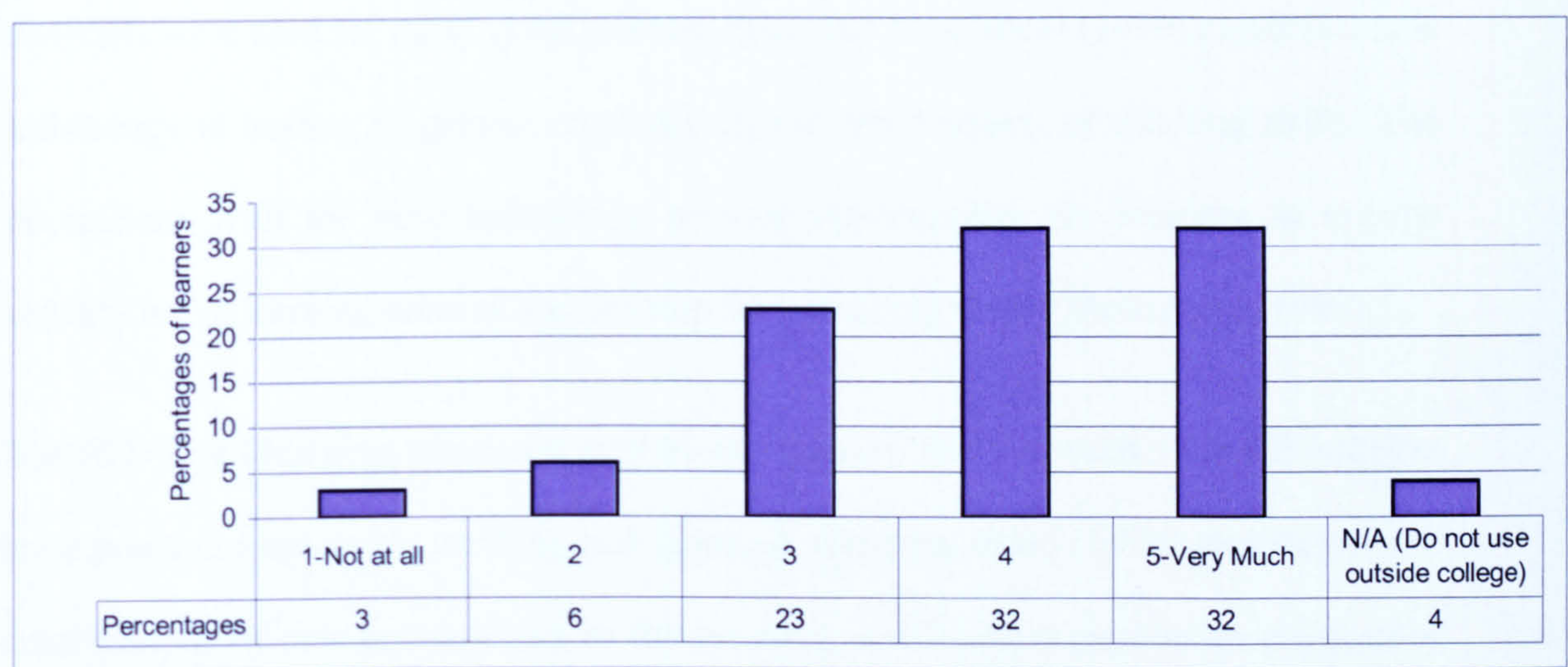




**Figure 8.3.3** The learners’ perceptions of how useful they found taking online tests and quizzes with instant electronic feedback, submitting work via email, following the web links provided for extra information and tracking their own progress on the VLE as part of their learning.

Respondents were also asked to what extent does they considered that their skills had been improved by their personal use of technology outside college work (e.g. using the Internet at home). Evidence from this investigation shows that 87% of the respondents indicated that their skills had been improved by their personal use of technology outside college work. It was noted that only 3% of the respondents indicated that their skills had not improved at all, while another 6% agreeing that there was a slight improvement in their skills as a result of their personal use of technology outside their college work (Figure 8.4).





**Figure 8.4** The learners’ perceptions of the extent to which their skills have been improved by their personal use of technology outside college work.

The most significant points emerged in this section are:

- only certain ICT-based resources were perceived by the learners to be frequently used by their teachers.
- The students’ perception was that certain ICT-based resources were more frequently used by themselves, rather than their teachers.
- The Internet was perceived by the learners to be the most useful ICT based resource.
- The learners perceived that their skills had been improved by their personal use of technology outside college work (e.g. using the Internet at home).

The use of VLE, application software, college Intranet and the Internet has becoming a popular mode of delivery of e-learning materials in the FE sector. The e-learning



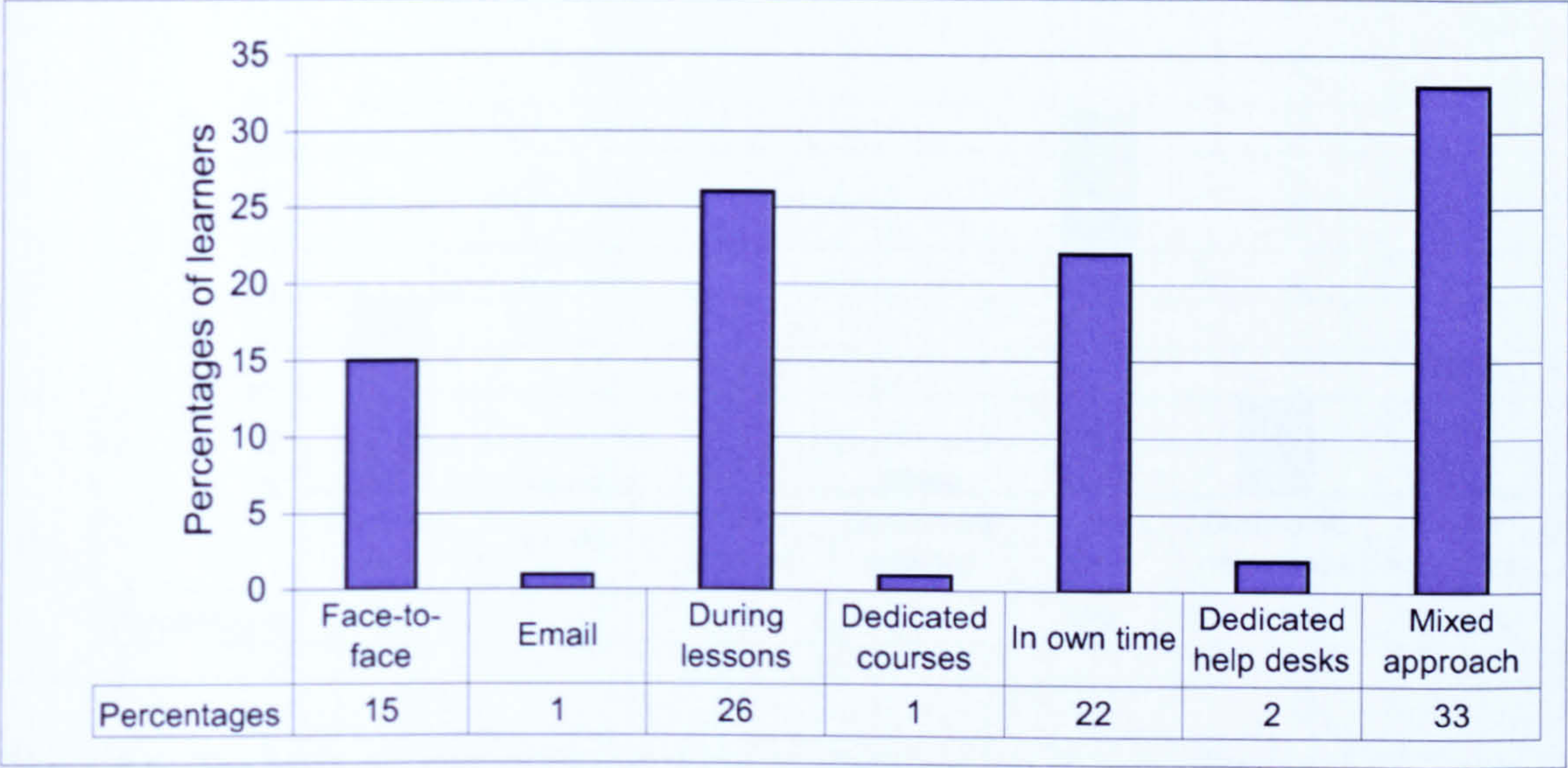
materials were used for many good reasons. Frear and Hirschbuhl (1999) claim that new technology is leading to greater emphasis on the development of thinking skills. The interactions with the new technology provide opportunities for learners to engage actively in the learning process and develop their thinking skills (McGuinness, 1999).

The ICT-based learning resources used by the learners and the teachers in FE colleges have positive impacts on teaching and learning. Gregoire *et al.* (1996) analysis of the contributions of new technologies to the teaching and learning process in elementary schools has revealed that students using new technologies concentrate more than students in traditional settings. They observed that new technologies help spur a research spirit within students and promote collaborative learning.

### **8.2.2 Technology Support**

Respondents were asked about the technology support they received in the college. The results from this study have suggested that 26% of the respondents were helped during lessons (by teachers), 22% helped themselves in their own time, while another 15% used the face-to-face method (outside lessons) as means of getting help to use technology in the college. Nevertheless the mixed approach seemed to be the most popular method for obtaining help as 33% of the respondents opted for this method. It was also noted from this study that using email, relying on dedicated courses and using dedicated help desks were considered to be the least popular method for obtaining help (to use technology) in the college. Please refer to Figure 8.5, which highlights the learners' perceptions of the technology support they received in the college.

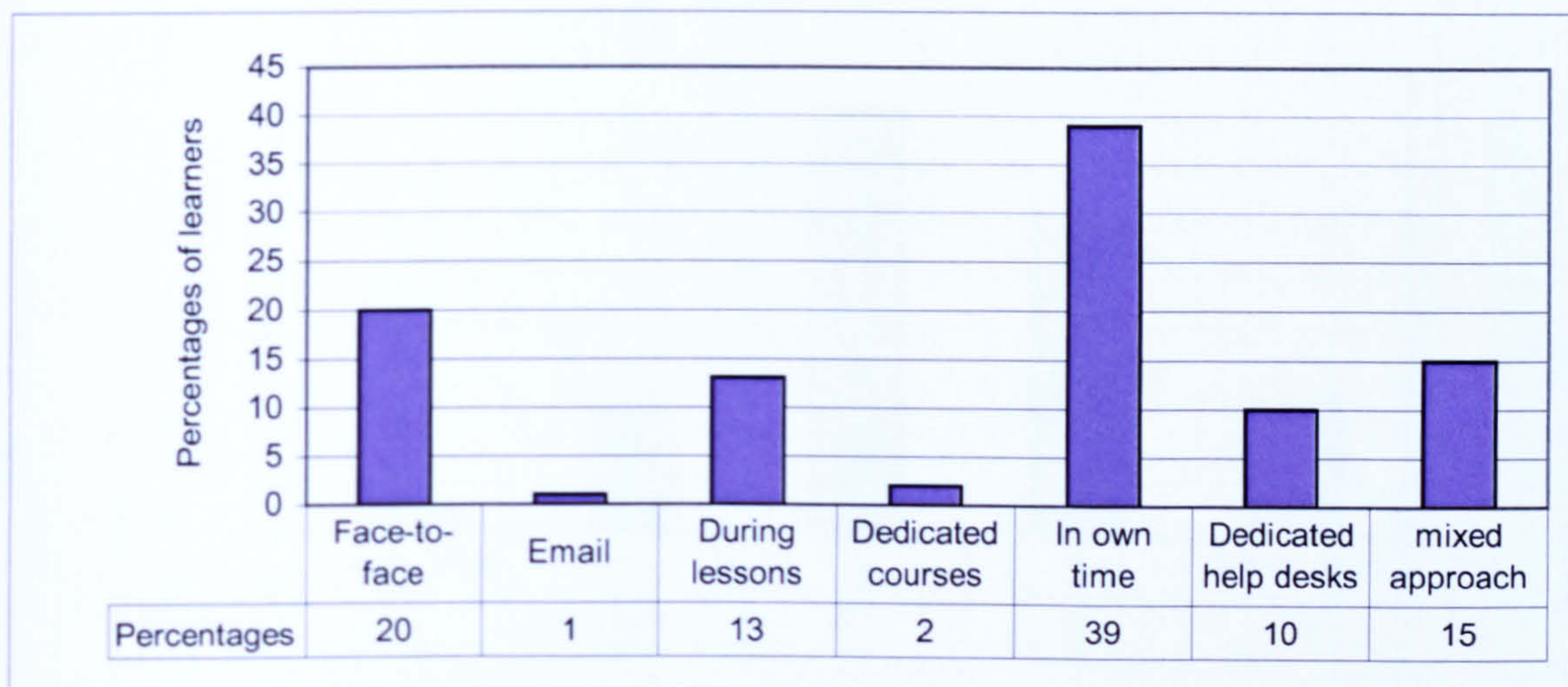




**Figure 8.5** The learners’ perceptions of the technology support they received in the college.

Respondents were also asked about the technology support they received in the learning centres. The responses obtained were quite different from the previous study (Figure 8.5) except for the two most unpopular approaches of using email and using dedicated courses. It was found that 39% of the respondents helped themselves in their own time; 20% used the face-to-face approach; 15% used the mixed approach; 13% were helped during lessons; and another 10% relied on dedicated help desks as reflected in Figure 8.6.

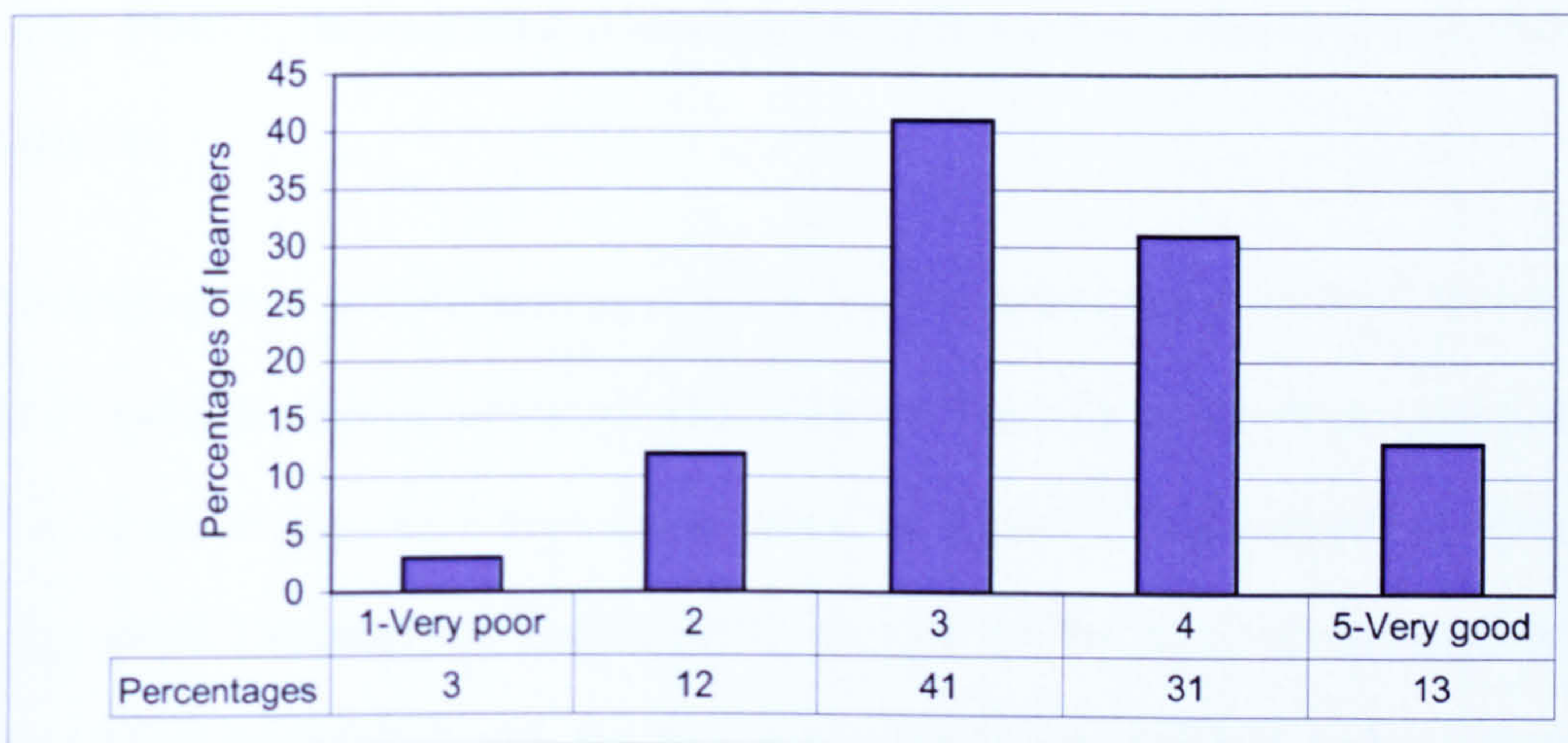




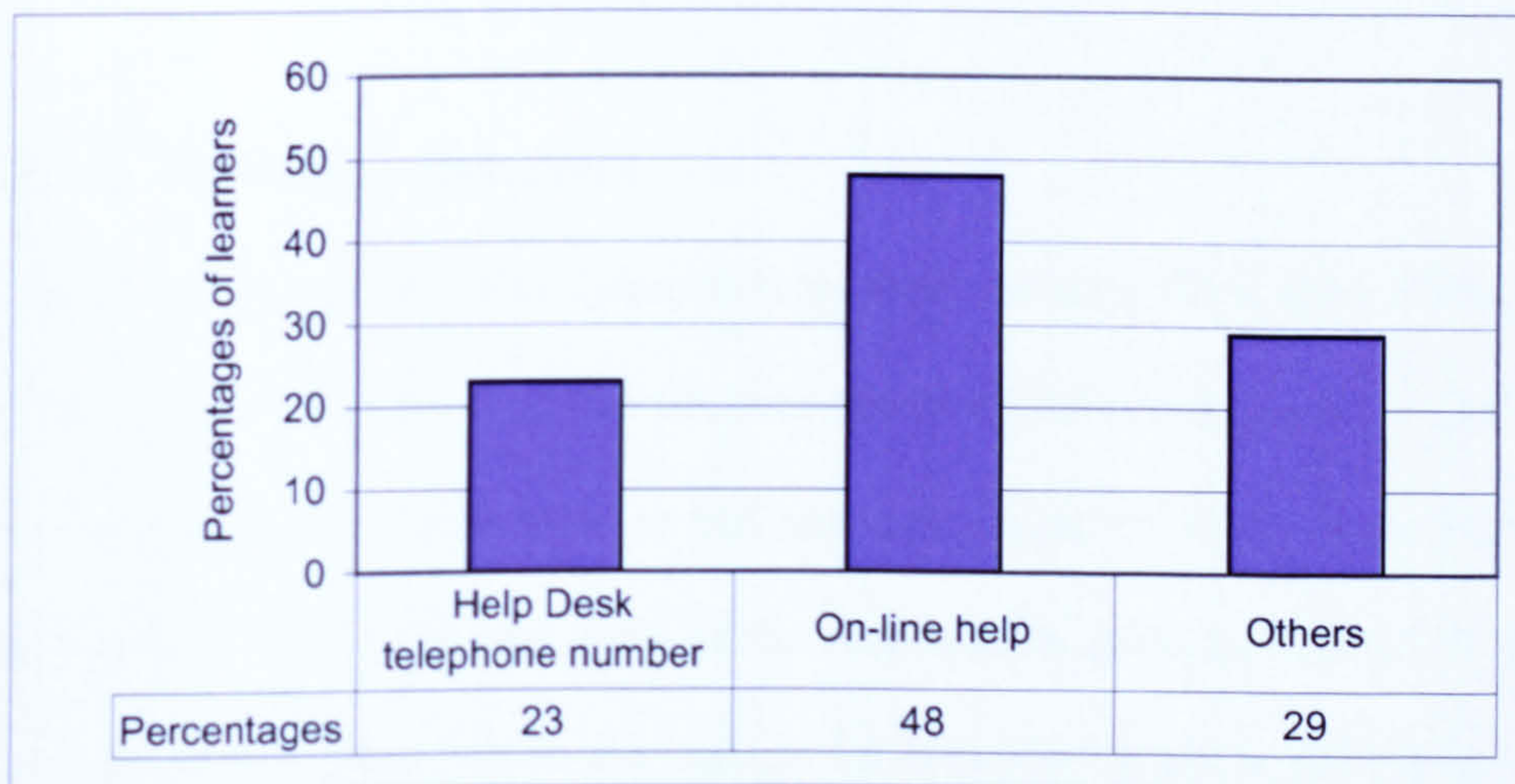
**Figure 8.6** The learners’ perceptions of the technology support they received in the learning centres.

The respondents were also asked about their perceptions of the technical support received in the college. It was noted that 41% of the respondents suggested that the technical support was *satisfactory*; 31% indicated that the technical support was *good*; with another 13% considering the technical supports received was *very good* as shown by Figure 8.7. Please also refer to Figure 8.8 which shows the type of technical support available to learners in FE colleges: help desk telephone number (23%), online help (48%) and others (29%).





**Figure 8.7** The learners’ perceptions of the technical support they received in the college.



**Figure 8.8** Type of technical support available to learners in FE colleges.

The most significant point in this section is that the majority of the learners in FE colleges were satisfied with the technical supports received by them. A good technical support will have an effect on the students, for them to become independent learners. Peter (2000) suggests that in future there will be greater emphasis on students learning independently and autonomously. Scott (2002) argues that for student-centred learning



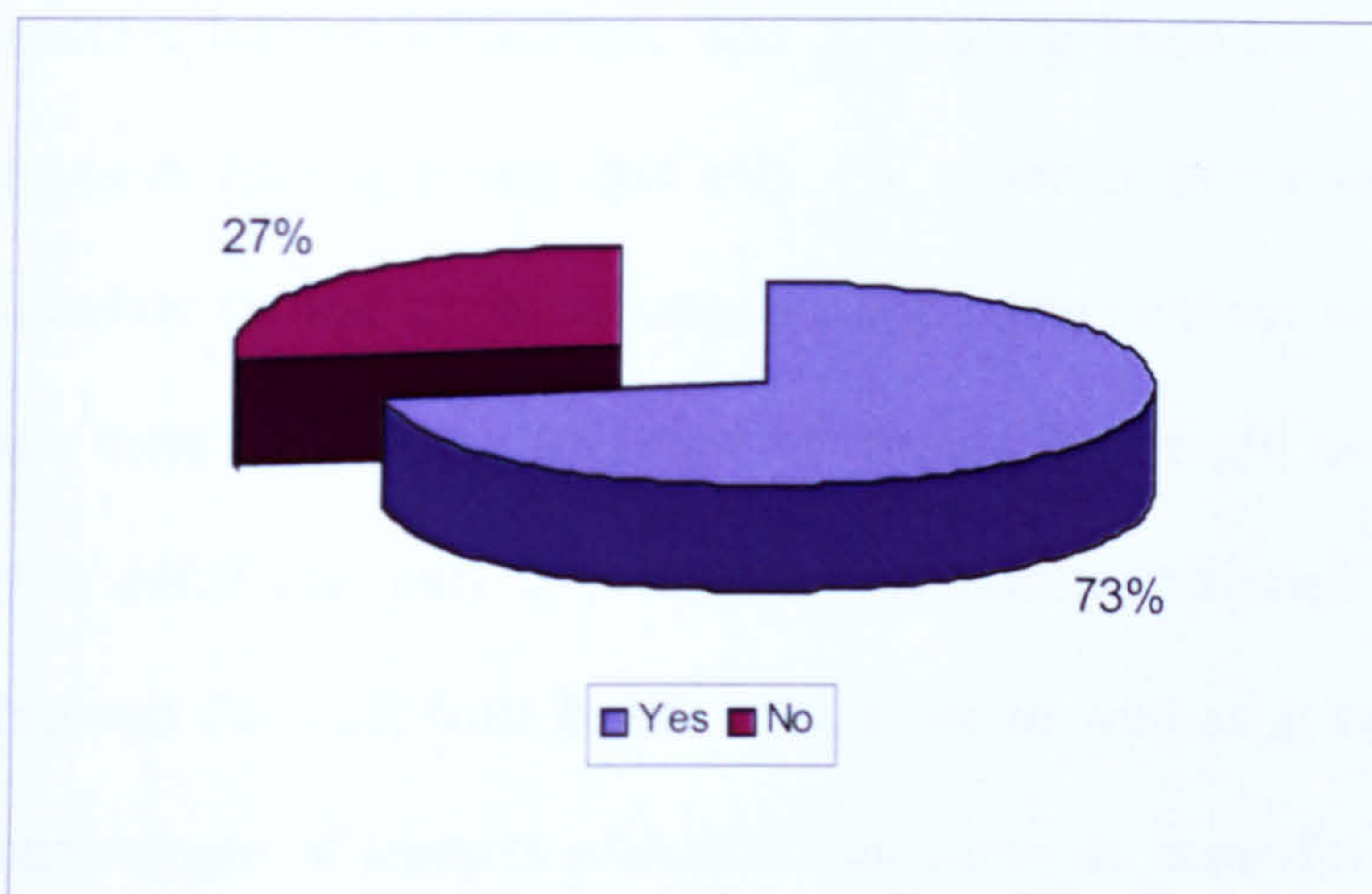
to be effective, students need to be supported to become self-organised and autonomous learners.

Student-centred flexible learning is where learners have some control of the time, place, pace and processes of their study (Race, 1998). The educational policy and practice in UK in recent years have been characterised by a marked shift towards learner-centred approaches (Malcom and Zukas, 2001). In view of the fact that the majority of the learners were satisfied with the technical support they received in the college, it is hoped that the support received are likely to help them to become independent learners who are responsible for their own learning.

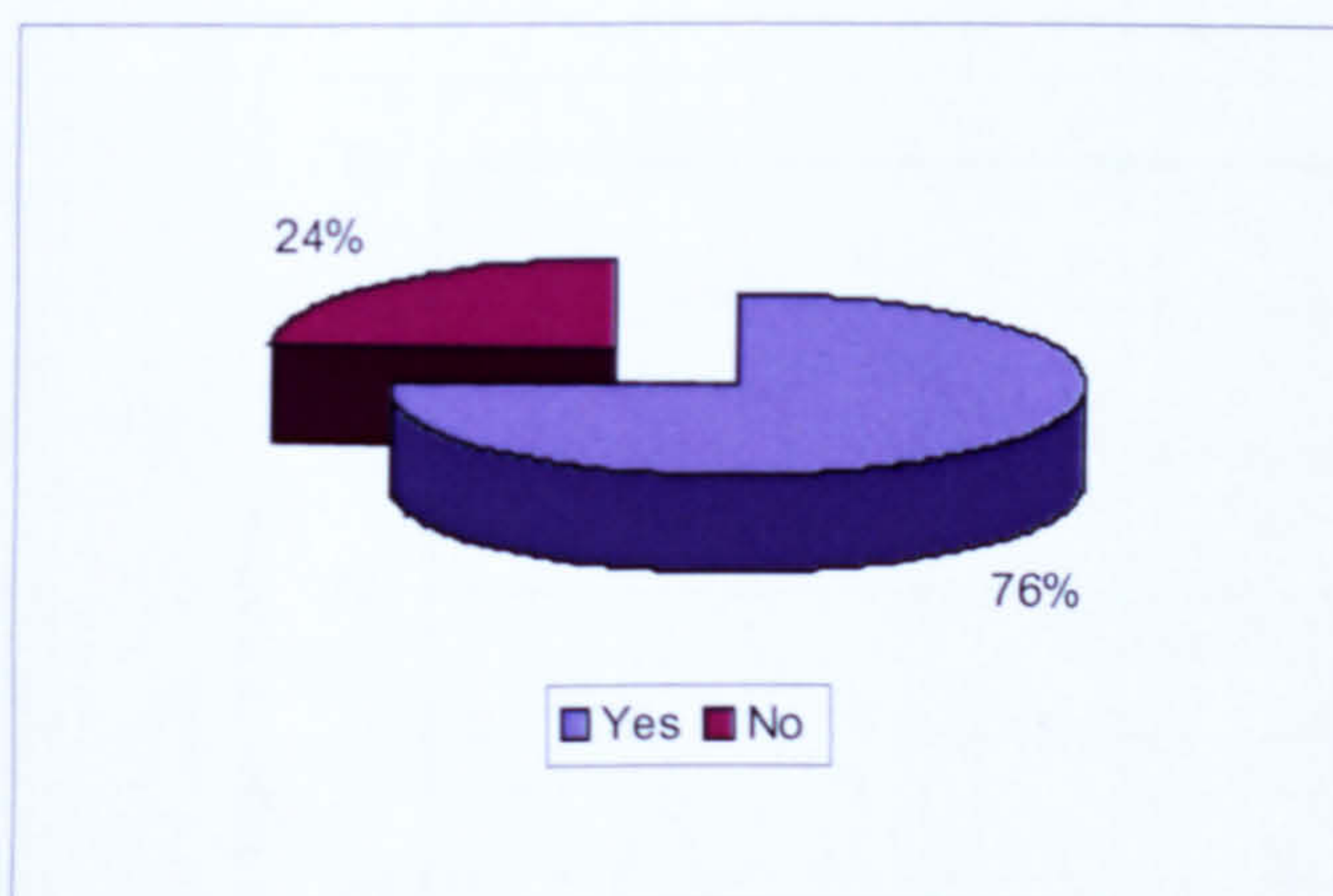
### **8.2.3 Technology Resources**

Under technology resources, respondents were asked if there were enough open access PCs in the college for them to use in completing their course work and if the PCs were accessible at times that were useful and convenient to them. In response to the first question, it was noted that 73% of the respondents gave an indication that there were enough open access PCs in the college for them to complete their coursework (Figure 8.9). To the second question, it was found that 76% of the respondents confirmed that the open access PCs in the college were accessible at times that were useful to them. Please refer to Figure 8.10, which shows the learners' perceptions of the accessibility of technology resources (open access PCs) in FE colleges.





**Figure 8.9** The learners' perceptions of the *availability* of technology resources (open access PCs) in the college.

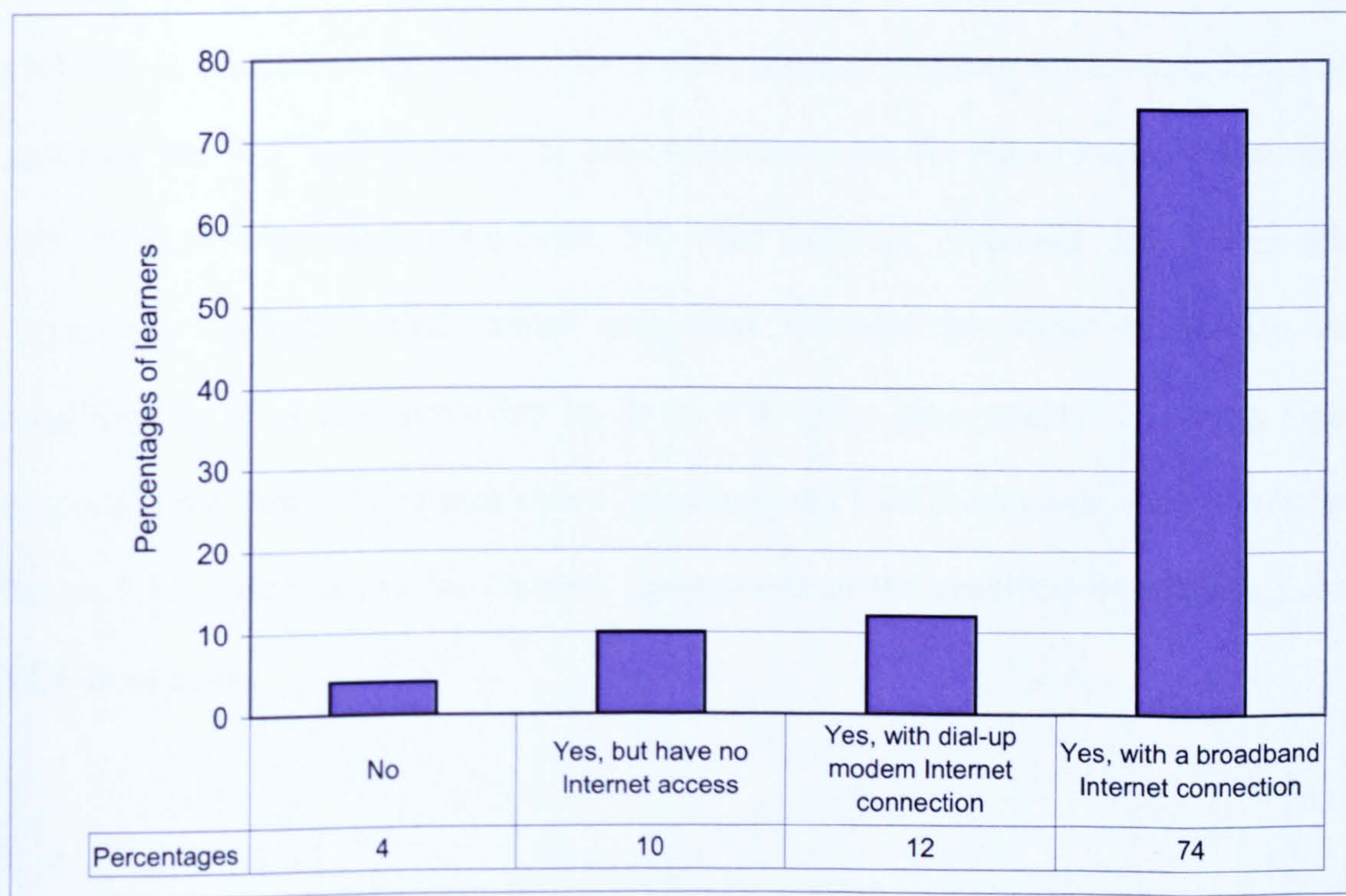


**Figure 8.10** The learners' perceptions of the *accessibility* of technology resources (open access PCs) in the college.

Respondents were also asked if they used computers at home for studying and whether they accessed materials through the VLE (e.g. lecture notes, announcements, tests and quizzes) from home and work place as well as at college. To the first question, 96% of the respondents confirmed that they used computers at home for studying (74% using computers with a broadband Internet connection, 12% using computers with dial-up

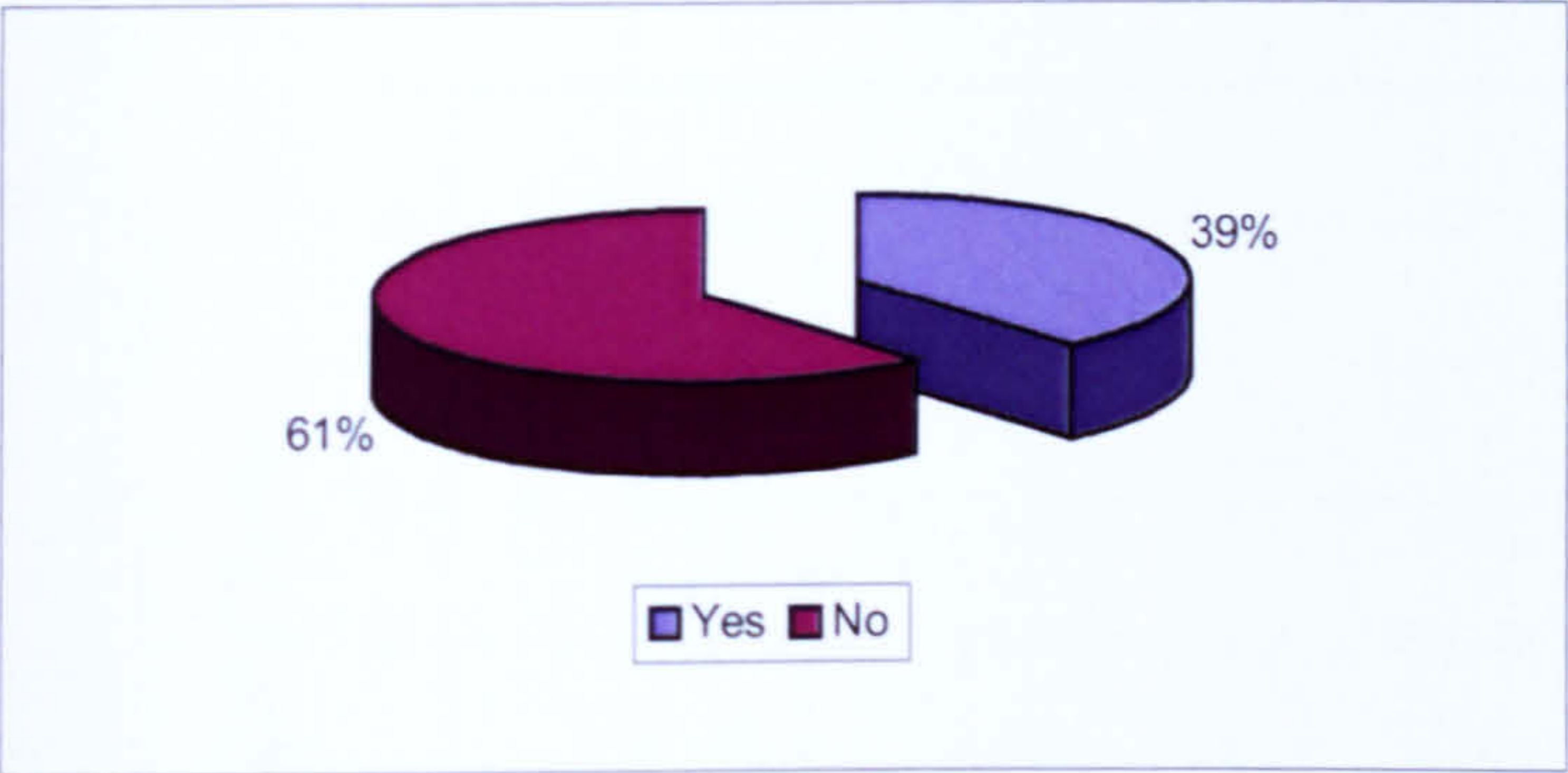


modem Internet connection, and 10% using computers without Internet access). The research finding shows that only 4% of the respondents answered negatively to this question (learners without computers at home or those who have computers but do not use them for studying for whatever reasons they might have). To the second question, it was noted that only 39% of the respondents indicated that they accessed materials through the VLE from home, work place as well as at college. Figure 8.11 shows the percentages of learners who used computers at home for studying; Figure 8.12 on the other hand highlights the percentages of learners who accessed materials through the VLE from home, work place as well as at college.



**Figure 8.11** Percentages of learners who used computers at home for studying.

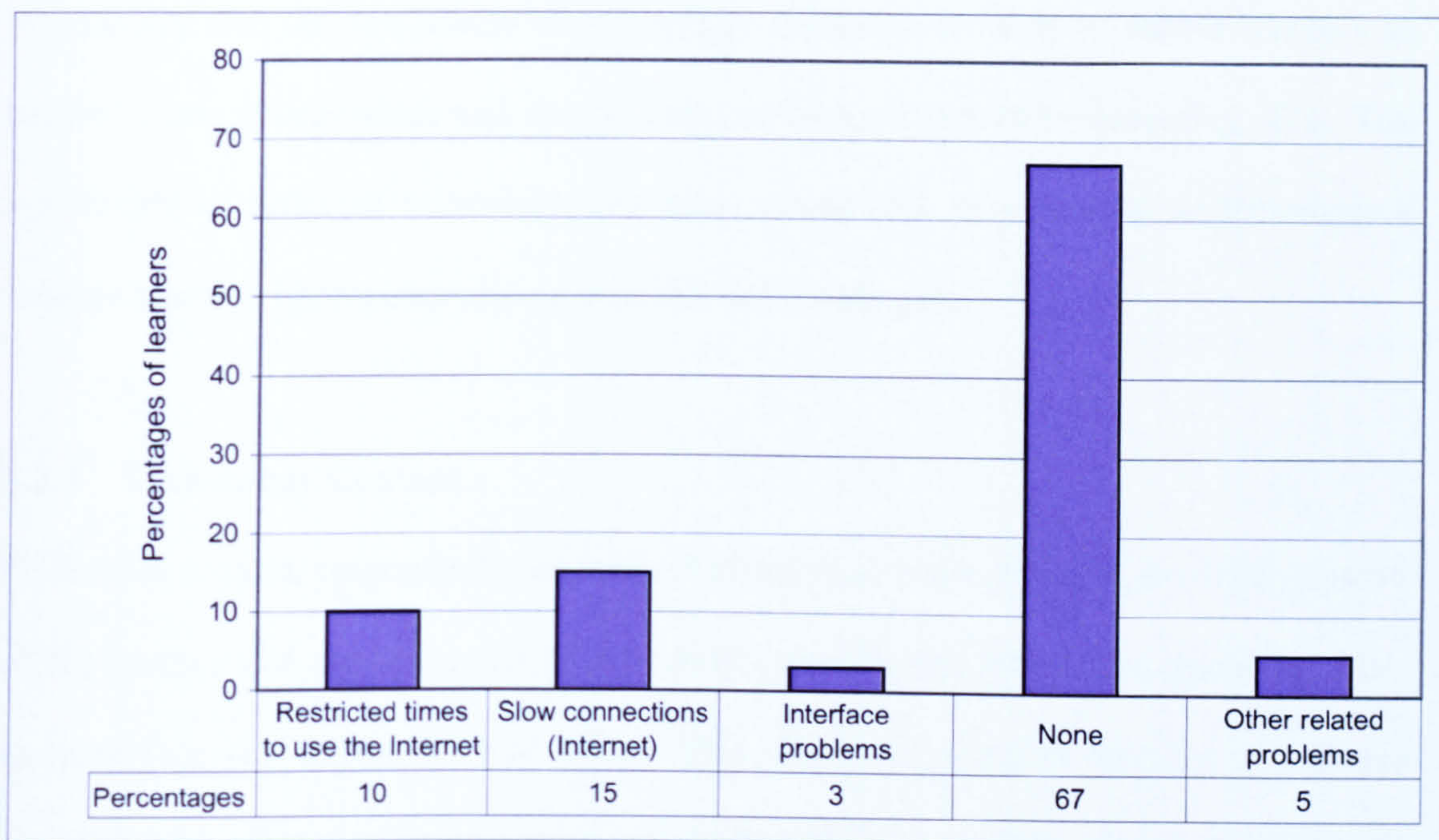




**Figure 8.12** Percentages of learners who accessed materials through the VLE from home, workplace as well as at college.

Respondents were also asked if they had problems accessing the VLE from home. To this question 67% of the respondents suggested that they did not encounter any problems in comparison with 33% of them who indicated that they did have problems of accessing the VLE from home (10% cited restricted times for them to use the Internet; 15% cited slow Internet connections; 3% cited interface problems; and 5% of the respondents indicated other related problems). Perhaps the wider availability of broadband at home and increasing levels of ICT skills have resulted in such a high proportion not experiencing problems of accessing the VLE from home. Please refer to Figure 8.13, which shows the learners’ perceptions of the problems of accessing the VLE from home.





**Figure 8.13** The learners’ perceptions of the problems of accessing the VLE from home.

The most important points emerged in this section are:

- The majority of the learners indicated that there was enough open access PCs in the college for them to complete their coursework.
- The open access PCs was accessible at times that were useful to them.
- Most of the learners used computers at home for studying.
- The majority of the learners indicated that they did not have problems accessing the VLE from home.

The above findings indicate that learners in FE colleges have shifted from *dependent learners* to *independent* ones. This was made possible because of: the technology resources (e.g. open access PCs) available in the FE colleges; and also because of the availability of computers at home.



We can say that the availability of technology resources is likely to enable learners to become more independent and that it helps reducing barriers to accessing ICT. The availability of different technology resources would also promote the student-centred flexible learning approaches among students in FE colleges.

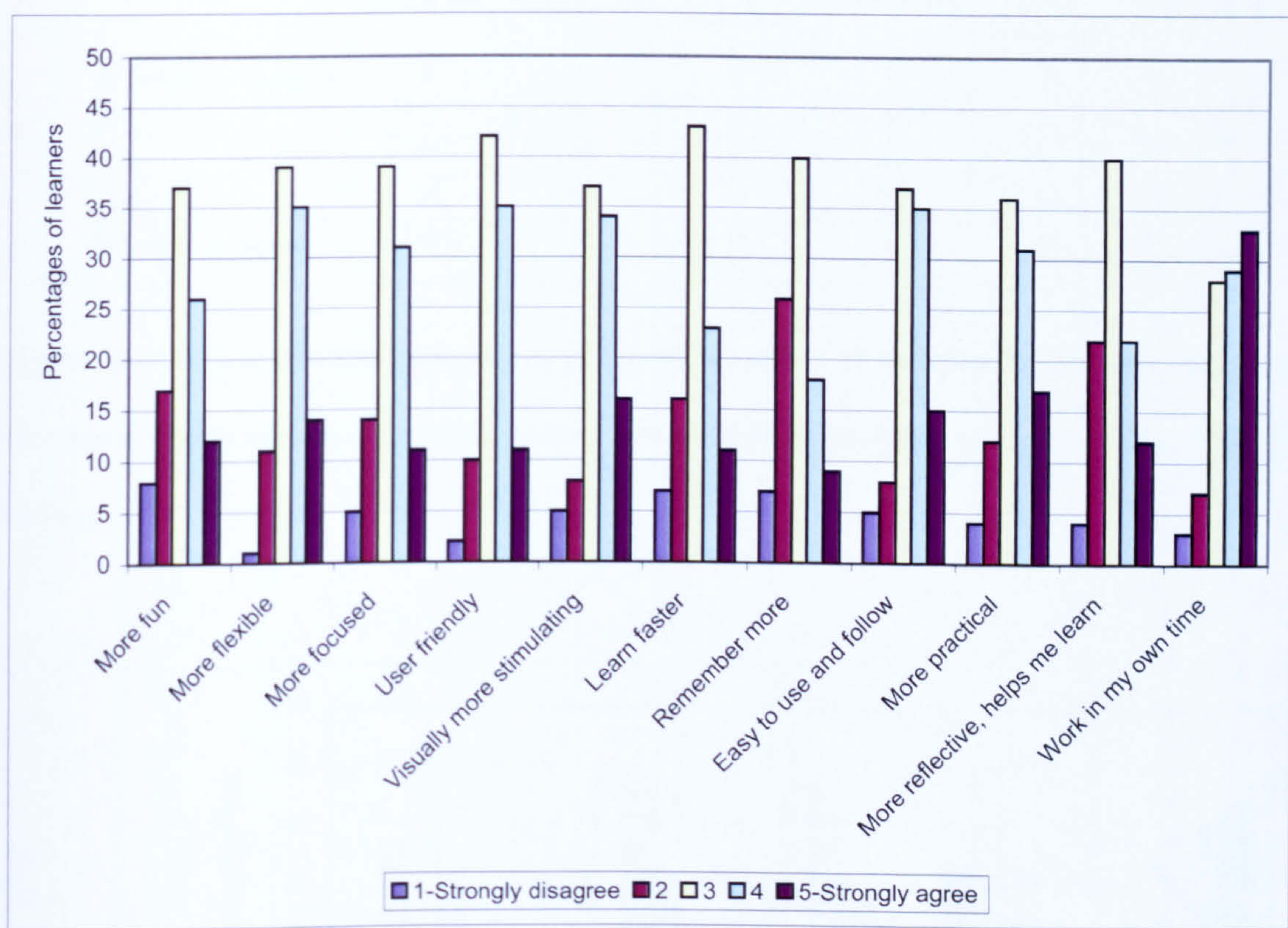
#### **8.2.4 Technology Content**

Under this section, respondents were asked about their perceptions of the VLE content of the courses that they accessed independently through the Internet compared to other contents (e.g. text books, TV and video). This was done to enable learners to compare the VLE with other platforms in terms of whether the VLE content; was more fun; more flexible; more focused; more user friendly; was visually more stimulating; enabled learners to learn faster; enabled learners to remember more; was easy to use and follow; was more practical; was more reflective, helped them learn; and enabled learners to work in their own time.

It was noted that 38% of the respondents indicated that in comparison with other contents, the VLE content was more fun; 49% indicated that it was more flexible; 42% indicated that it was more focused. 46% indicated that it was user friendly; 50% indicated that it was visually more stimulating; 34% indicated that it enabled learners to learn faster; 27% indicated that it enabled learners to remember more; 50% indicated that it was easy to use and follow; 48% indicated that it was more practical; 34% indicated that it was more reflective and it helped them learn; and 62% indicated that it enabled them to work in their own time. Despite of the positive responses above, it was noted that about 38% of the respondents (on average) did not show clear indications of

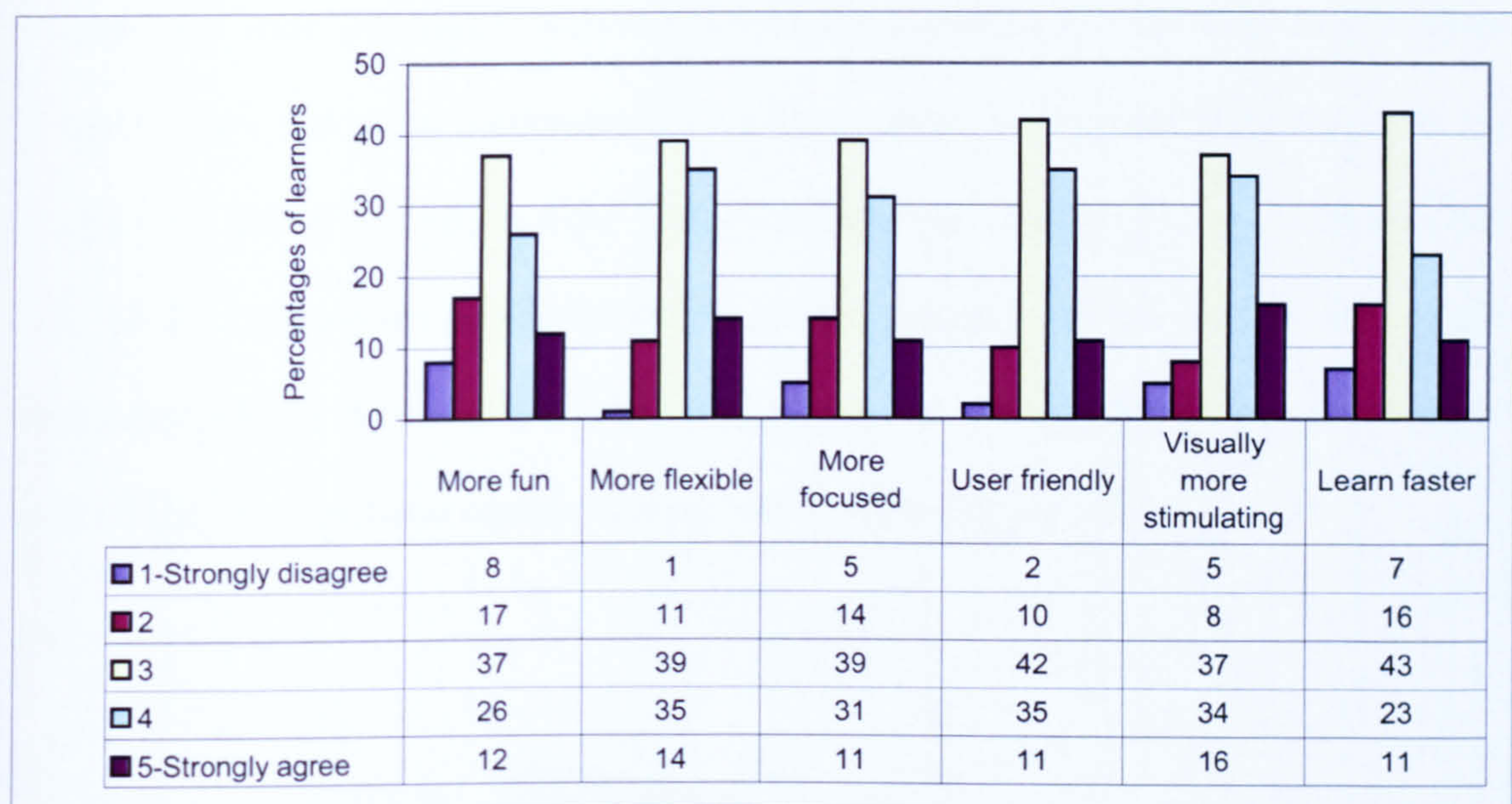


their perceptions to the question asked. Please refer to Figure 8.14 (Figure 8.14.1 and 8.14.2 for further clarification), which shows the learners' perceptions of the VLE content of the courses that they accessed independently through the Internet compared to other platforms (e.g. text books, TV and videos).

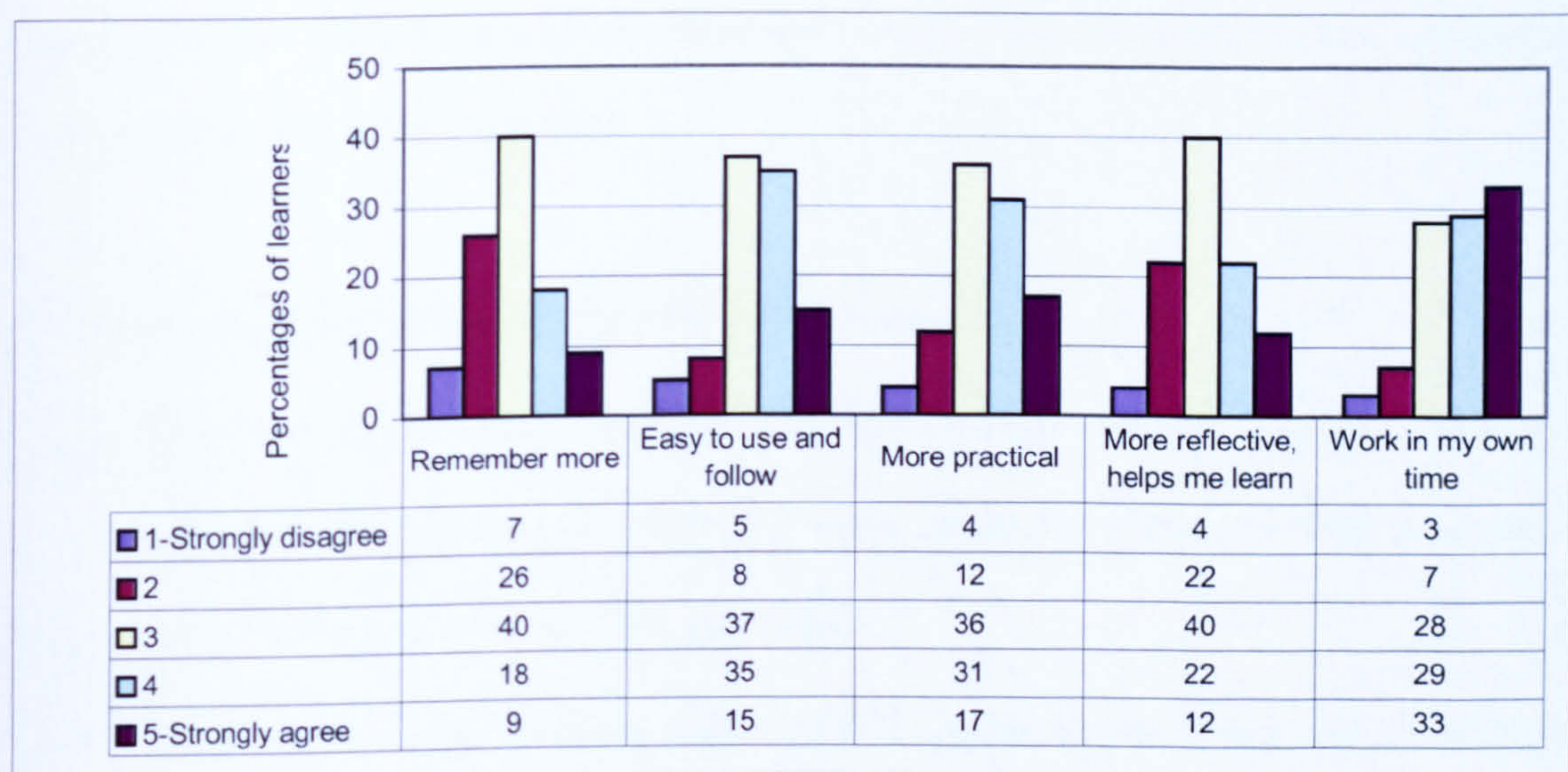


**Figure 8.14** The learners' perceptions of the VLE content of the courses that they accessed independently through the Internet compared to other platforms (e.g. text books, TV and videos).





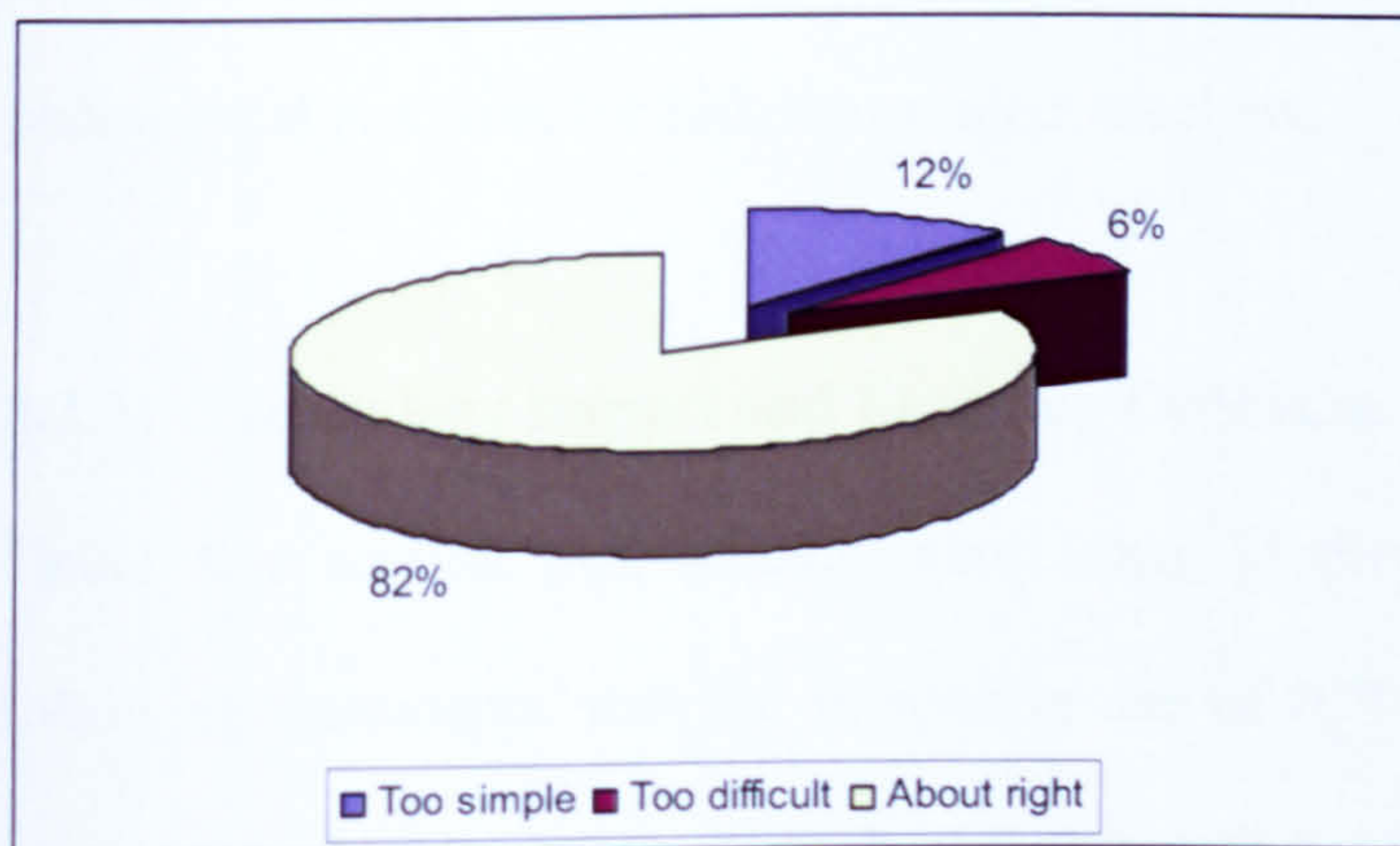
**Figure 8.14.1** The learners’ perceptions of the VLE content of the courses that they accessed independently through the Internet in comparison with other platforms (e.g. text books, TV and videos).



**Figure 8.14.2** The learners’ perceptions of the VLE content of the courses that they accessed independently through the Internet in comparison with other platforms (e.g. text books, TV and video).



Respondents were also asked of their perceptions (in general) on the electronic content of the courses that were independently accessed by them, whether they found it too simple, too difficult or about right. Evidence from the case study has suggested that 12% of the respondents perceived the electronic content was too simple; 6% of the respondents found it too difficult; but majority of the respondents (82%) were of the opinion that the electronic content was just about right (Figure 8.15)



**Figure 8.15** The learners' perceptions (in general) on the electronic content of the courses that were independently accessed by them.

The most significant points emerged from this section are:

- The learners perceived the VLE's contents of the courses that they accessed independently through the Internet were generally better compared to other platforms (e.g. text books, TV and videos).
- The majority of the learners indicated that, generally the electronic contents of the courses were neither too simple nor too difficult to use and follow.

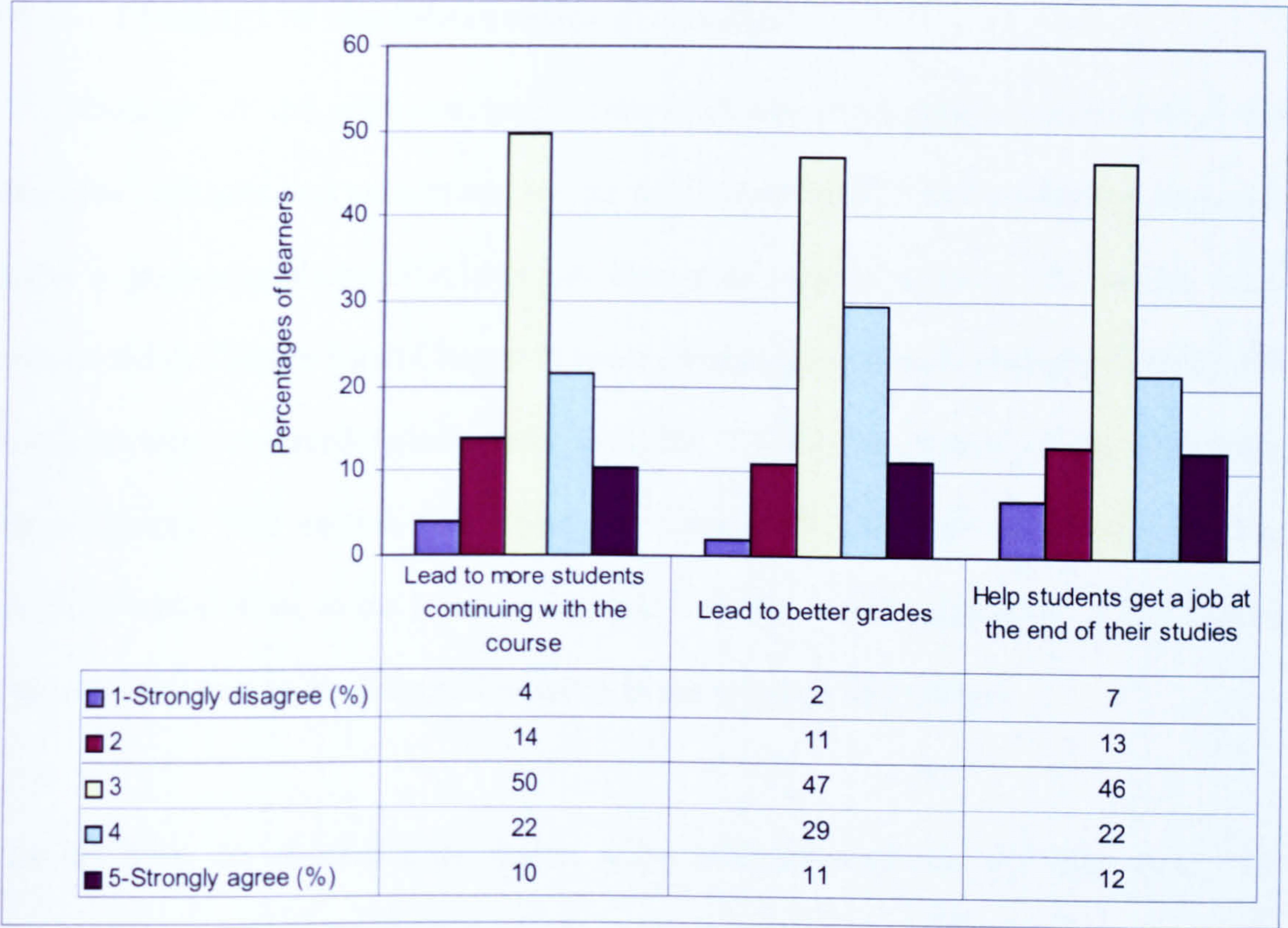


Alexander (1992) observes that in the UK the focus was more on content rather than pedagogy. In relation to this issue, he argues that this should not be the case since content and pedagogy are indissolubly linked. Shulman's (1987) model of pedagogical reasoning on the other hand, focuses on the processes involved in teaching which include: transformation of knowledge and how it can be taught; the issue of pedagogical content knowledge. It was argued that since pedagogical content knowledge differs between subjects, the choice and use of ICT resources would also differ in terms of pedagogical practices for different subject teachers.

#### **8.2.5 Technology Impact and Learning Outcomes**

Under this section, respondents were asked if they agreed or disagreed with the following statements, that the increasing use of ICT and online learning will lead to more students continuing with the course; will lead to better grades; and will help students getting a job at the end of their studies. It was noted that 32% of the respondents agreed with the statement that the increasing use of ICT and online learning would lead to more students continuing with the course; 40% of the respondents agreed that the increasing use of ICT and online learning would lead to better grades; with another 34% agreed that the increasing use of ICT and online learning would help students getting a job at the end of their studies (Figure 8.16).





**Figure 8.16** The learners’ perceptions of the technology impact and learning outcomes in relation to the increasing use of ICT and online learning.

The most significant point in this section is that the increasing use of ICT and online learning was viewed to have positive impacts as:

- It may lead to more students continuing with the course.
- It may lead to better grades.
- Able to help students getting a job at the end of their studies.



### **8.3 Findings of the Observational Studies**

The findings of the semi-structured non-participant observations, investigating the teachers' attitudes and perceptions on the application of ICT and e-learning materials used in post-compulsory education has been presented in Section 7.3. As has been mentioned in Chapter 3 and Chapter 7, twelve teaching sessions from three different FE colleges were observed (please refer to Table 7.1 for the details of the classroom observations). This section will report and discuss the observational studies' overall findings which relate to the learners' activities and the actual application of ICT and e-learning materials to teaching and learning in the selected FE colleges.

Results from the observational studies were analysed into two different areas: the learners' attitudes towards ICT and technology in teaching and learning; and the extent to which ICT and technology were used in teaching and learning environment.

#### **8.3.1 The Learners' Attitudes towards ICT and Technology in Teaching and Learning**

It was noted that (quite similar to their teachers), the learners were also enthusiastic and showed positive attitudes towards ICT and technology in teaching and learning. Most of the learners seemed to be enjoying themselves learning with ICT. It was observed that the learners were quite confident (and some of them as confident as their teachers), and possessed the required ICT skills to undertake the session tasks.

The majority of the learners showed a keen interest on certain topics; responded to the teachers' questions (when asked); were active in the groups' discussion task; as well as



enjoying the brainstorming sessions held by the teachers. Most of them listened attentively to the teachers, while taking down notes from the interactive whiteboard (during teaching sessions). It was observed that most of the learners seemed to enjoy and participated quite actively during teaching sessions (in the classrooms), and/or when completing their course works in the computer lab or the language lab.

### **8.3.2 The Extent to which ICT and Technology were Used in Teaching and Learning**

The findings on the extent to which ICT and technology were used in teaching and learning is limited to the use of ICT and technology in the classrooms, computer lab, and the language lab (the actual venues where the observational studies were carried out), and not otherwise. It was noted from the classroom observations that ICT and technology were actively used by the learners in the classrooms, computer lab, language lab for a variety of learning activities which include the following:

- Apart from the network PC, Applications software was considered as one of the most important ICT based learning resources, on the part of learners. They used Words for typing and preparing their assignments and course works, and they used PowerPoint to present their group works in the classrooms.
- Some teachers used the wireless keyboard and wireless mouse for group discussions, brainstorming sessions or even for ordinary teaching sessions with their students. For classrooms which have only one network PC, these *tools* proved to be very practical and convenient as teachers could pass around the



mouse and keyboard to their students, one group after another. The students would then use the wireless keyboard to type bullet points and/or relevant answers for the session task. Since the wireless keyboard was directly connected to the IWB, the teachers could show the lesson outline, the session tasks and the students' work on the IWB. The advantage of using the wireless keyboard and wireless mouse is that although the classroom has only one network PC, all the students could participate in the discussion and brainstorming sessions held by their teachers. As for the teachers, they could give constructive comments and feedbacks on the students' work which were displayed on the IWB, using the ceiling projector.

- During teaching sessions, the teachers normally distributed handouts and/or classnotes to the students, to explain certain topics and also for reinforcement purposes. A two-way communication was observed; the teacher asking questions and students giving out answers, and vice versa.
- In the English Literature Department, the students would normally do their coursework in the computer lab, which was equipped with about 25 to 30 network PCs (the network PCs were linked to the college Intranet and the Internet). The students would access the College Intranet for their session tasks, and then they would search the Internet for research materials. Once they obtained the relevant materials, they would type the coursework using PowerPoint or Word documents. The students are not required to print their coursework, but instead they have to email their finished works to the teacher.



During coursework sessions, the teachers would normally supervise the students, and offer help as and when needed.

- The students in the Modern Foreign Language Department have to go to the language lab for listening modules and to prepare assignments or coursework. Apart from the network PCs and satellite TV, the language lab was equipped with headphones and control panels (which were linked to the network PC) for the students' use. When the students were busy with their listening program, the teacher would normally help the students to search materials from the Internet; distributed handouts for the session task; and sometimes help the students to open and locate files from the College Intranet.

It was observed that a range of ICT-based learning resources and various teaching methods were used by the teachers in FE colleges to teach their students in the classrooms, computer lab and the language lab. In relation to the above, Alexander (1992) identifies *teaching methods* and *pupil organisation* as the two aspects of pedagogy, where pedagogy is one of the seven inter-related aspects of educational practice. Alexander (1992) believes that to illuminate good practice in teaching and learning with ICT will require the following: examining teacher's ideas, values and beliefs; and examining their thinking that leads to observable elements in practice. Becta (2005) on the other hand outlined ten core principles which express the underpinning values that can be applied to a range of expressions of e-learning and which are particularly useful to designers, teachers and learners. These principles are known as the Ten Pedagogic Principles for E-learning.



## **8.4 Conclusions**

This chapter has presented the findings on the learners' attitudes and perceptions on the application of ICT and e-learning materials used in post-compulsory education. The most significant findings from this chapter are as follows:

- The learners perceived that only certain ICT-based resources were frequently used by their teachers (PowerPoint, Interactive Whiteboard, Data Projectors and class notes) as part of their teaching.
- Certain ICT-based resources were more frequently used by the learners than their teachers of which class notes were found to be the most frequently used item by both users.
- Certain ICT-based resources such as discussion boards, video conferencing, CDRoms, email comments, peripherals (cameras, etc) and mobile devices (PDAs, etc) were not frequently used by the learners as part of their learning.
- The Internet was perceived to be very useful by the learners compared to other ICT-based resources and was considered to be the most important form of technology's application in the teaching and learning environment.
- Most learners felt that their skills have been improved by their personal use of technology outside college work.
- The majority of the learners were satisfied with the technical support they received and the availability and accessibility of technology resources in FE colleges.



- Although most of the learners used computers at home for studying, only 39% of them accessed learning materials through the VLE from home, work place as well as at college. Apart from that, the majority of the learners suggested that they did not have problems accessing the VLE from home.
- Some of the learners perceived that the VLE content of the courses that they accessed independently through the Internet were generally better compared to other platforms (e.g. text books, TV and video).
- The majority of the learners indicated that, generally the electronic content of the courses which was independently accessed by them were neither too simple nor too difficult to use and follow.
- The increasing use of ICT and online learning was viewed to have positive impacts as it may lead to more students continuing with the course; may lead to better grades and able to help students getting a job at the end of their studies.



## **Chapter 9**

### **Conclusions**

This chapter will briefly present the summary (Section 9.1), the main findings (Section 9.2) and the overall conclusions of the research (Section 9.3). It will also provide some recommendations, highlight possible contributions of the study undertaken, and offer suggestions for future research (Section 9.4).

#### **9.1 Summary**

In this section, the thesis will summarise what has been presented and discussed in the previous eight chapters (Chapter 1 to Chapter 8).

##### **Chapter 1: Introduction**

Under Section 1.1 (Research Background) the following issues were raised and discussed: the impact of ICT use in teaching and learning within the post-compulsory education sector which has not been extensively researched in the United Kingdom (Becta, 2007); the embedding of ICT within the FE sector which proved to be problematic despite the steady progress in the use of e-learning and technology since the early 1980's; possible reasons as to why ICT has not been taken up fully by the FE sector; and the main barriers that exist in schools which prevent teachers from making full use of ICT in their works (Becta, 2004). Although the main aim of this research is to investigate the application of e-learning materials to teaching and learning in post-



compulsory education in the West Midlands, FE colleges in particular, the study also aimed to explore the implications for the pedagogy of e-learning materials and wished to determine whether the application of ICT and e-learning materials to teaching and learning has been implemented fully by the selected FE colleges. The main objectives of the research were also highlighted in this section although a more detail explanation on this area was duly addressed in Section 1.3. This section has also briefly discussed on the research methodology; how data was collected; how the samples were selected; and a brief outline on the different stages of activities involved in the whole research process.

Section 1.2 provided some definitions on e-learning materials and discussed some of their strengths and limitations as mediators for learning; Section 1.3 presented the research objectives; Section 1.4 discussed the research context, and included a brief accounts on the rationale for carrying out the research, and the specific research questions formulated to address the research aims and objectives and to develop an understanding of the pedagogy of e-learning materials. Section 1.5 presented the structure of the thesis while Section 1.6 discussed the originality of the thesis.

## **Chapter 2: Literature Review and Documentary Analysis**

Chapter 2 presented in detail the literature review and documentary analysis related to the areas being researched. The main areas of study included in this chapter are as follows: technology in education; the impact of technology on pedagogy; technology and the development of thinking in post-16 education sector; learning styles theory and its implications for pedagogy; issues relating to designing and delivery of e-learning



materials; student-centred flexible learning and teacher-centred traditional learning; blended learning approach; ICT and pedagogy; ICT and attainment; and teachers' barriers to ICT use.

Section 2.2 discussed the role of technology in education and identified three important aspects which need to be considered to provide as a strong theoretical framework for thinking about the possible synergies between technology and learning: how people learn; what constitutes effective learning environments; and the role of information and communication technologies in education. Section 2.3 examined the positive impacts of technology on pedagogy. Section 2.4 discussed the role of technology and the development of thinking in post-16 education sector. Section 2.5 discussed the learning styles theory and its implications for pedagogy and included detailed accounts on learning styles approaches, learning styles models, arguments on learning styles, and highlighted some implication for pedagogy. Section 2.6 deliberated on issues relating to designing and delivery of e-learning materials. Section 2.7 examined the difference between student-centred flexible learning and the teacher-centred traditional learning. Section 2.8 discussed the blended learning approach. In this section there were arguments to support blended learning; advantages of such approach; and briefly discussed issues relating to blended learning technology. Section 2.9 reviewed the relationship between ICT and pedagogy and discussed issues relating to pedagogical reasoning and examined the relationship between attainment and pedagogical practices of using ICT in primary and secondary education. Section 2.10 investigated the effects of ICT on attainment. This section highlighted factors affecting attainment and provided research evidence relating to specific curriculum subjects (Mathematics, English and



Science). Section 2.11 discussed the teacher's barriers to ICT use: the lack of teachers' confidence and teachers' computer anxiety; the lack of teachers' competence; the lack of access to resources; the lack of time; technical-related problems (fear of things going wrong and lack of technical support); the resistance to change and negative attitudes; and the issue of *no perception of benefits*.

### **Chapter 3: Research Methodology**

Chapter 3 presented in detail the research methodology used in this investigation. It discussed all the techniques and strategies adopted and provided definitions and theories related to the specific techniques and strategies. It offered justifications for each choice made and highlighted the strengths and limitations of the different techniques and strategies used in the research methodology.

Section 3.2 provided justification for using the methodological triangulation approach to carry out this research. Section 3.3 discussed the research design (survey and case studies); section 3.4 described the sampling design; and section 3.5 discussed in detail the strategies for data collection (semi-structured interviews, structured questionnaires and semi-structured non-participant observations). Section 3.6 highlighted the ways in which data from different type of instruments being processed and analysed; Section 3.7 addressed the ethical issues; Section 3.8 deliberated on the issues of validity and reliability; while Section 3.9 discussed the limitations of the research methodology for the instruments used in data collection i.e. interviews, questionnaires and observational studies.



## **Chapter 4: The Range of Settings in which E-learning Materials are used in Post-compulsory Education and the Mode of Delivery of E-learning Materials used**

Chapter 4 presented the findings on the range of settings in which e-learning materials are used and the mode of delivery of e-learning materials used in post-compulsory education. Section 4.2 discussed the findings on the range of settings in which e-learning materials are used and examined the curriculum areas which used e-learning materials; the main curriculum areas that used e-learning materials; and the extent of which e-learning materials are used on these curriculum areas. Section 4.3 highlighted the findings on the mode of delivery of e-learning materials used; prevalence of VLE use as mode of delivery of e-learning materials; and the strengths and weaknesses of the modes of delivery of e-learning materials used. Section 4.4 identified the primary sources of e-learning materials used while Section 4.5 provided arguments for and against the commercially-produced e-learning materials with those that were self-developed by the selected FE colleges in the West Midlands. Please refer to Section 9.2 which listed the main findings of Chapter 4, Chapter 5, Chapter 6, Chapter 7 and Chapter 8.

## **Chapter 5: The Ways in which E-learning Materials are Used and the Implications for the Pedagogy of E-learning Materials in Post-compulsory Education**

Chapter 5 presented the findings on the ways in which e-learning materials are used and the implications for the pedagogy of e-learning materials in post compulsory education. Section 5.2 investigated the ways in which e-learning materials are used in teaching and



learning and examined the purposes for which e-learning materials are used across the colleges: whether they are used for online assessments and quizzes; for simulation purposes; for learning reinforcement outside classrooms; for research and assignment supports; for demonstrating skills and for practical skills; and for delivering online materials and supplementary information to students. Section 5.3 examined the ways in which e-learning materials are being applied in teaching and learning situations in the selected FE colleges: whether e-learning materials are used for a whole session or part of a session; whether they are used with the whole class or in groups; and whether they are used on demand by students or whether their use is planned by teachers. Section 5.4 investigated the implications for the pedagogy of e-learning materials in FE colleges. The main areas of focus in this section are as follows: aspects of the syllabus for which e-learning materials are particularly suitable; the effectiveness of the e-learning materials; reasons for using the e-learning materials; sources of evidence that the e-learning materials enhance learning; potential effects of not using the e-learning materials; and the relationship between e-learning materials and the learner's learning styles.

## **Chapter 6: The Main Issues Related to the Application of E-learning Materials Used in Post-compulsory Education**

Chapter 6 presented the findings on the main issues related to the application of e-learning materials used in post compulsory education. Section 6.2 investigated how the teaching staff deals with variation in learners' ability to use e-learning materials and ICT related equipments and technology; Section 6.3 identified the problems to deliver e-learning materials in FE colleges; while Section 6.4 examined how is e-learning



organised in FE colleges in terms of staffing, sources of funding, and the colleges' ICT strategies. Section 6.5 highlighted the FE colleges' involvements with outside organisations with regards to ICT use in teaching and learning; Section 6.6 focused on the colleges' current key development issues; while Section 6.7 outlined the FE colleges' future plans for ICT use.

## **Chapter 7: The Teachers' Attitudes and Perceptions of the Application on ICT and E-learning Materials Used in Post-compulsory Education**

Chapter 7 presented the findings on the teachers' attitudes and perceptions of the application of ICT and e learning materials used in post-compulsory education based on evidence received from the Teachers' Questionnaires as well as the findings from observational studies carried out during the case studies investigation. Section 7.2.1 examined the teachers' attitudes towards ICT in general and their attitudes towards ICT in teaching and learning. Section 7.2.2 on the other hand investigated the following areas: the extent of which ICT is used in the teaching environment; the teachers' perceptions of the value of ICT in the teaching environment; the extent of which ICT is used for inside and outside classrooms' use; the teachers' perceptions of the value of ICT for inside and outside classrooms use; and the extent of which the new learning technology changed the way teachers' work over the last five years. Section 7.2.3 discussed findings on the teachers' satisfaction level in relation to the IT support received by them; the teachers' satisfaction level in relation to the courses that were designed to improve their technology skills; the teachers' satisfaction level in relation to the courses that were designed to help them use technology in their work; and the teachers' confidence level to deliver and support learning with ICT. Section 7.2.4



examined the extent of which ICT methods and equipments are used for delivering teaching and learning in classrooms and learning centres; and the extent of which the college VLE and the college Intranet are used on the courses that they teach. Section 7.2.5 investigated the teachers' perceptions of the positive impact of using ICT in FE colleges and their perceptions of the current and future improvement of the student's learning outcomes as a result of the application of technology, while section 7.3 discussed the findings of the observational studies carried out during the case studies investigation in three FE collages.

## **Chapter 8: The Learners' Attitudes and Perceptions on the Application of ICT and E-learning Materials Used in Post-compulsory Education**

Chapter 8 presented the findings on the learners' attitudes and perceptions of the application of ICT and e learning materials used in post-compulsory education based on evidence received from the Learners' Questionnaires as well as the findings from observational studies carried out during the case study investigation. Section 8.2.1 examined the following areas: the learners' perceptions of the frequency with which different ICT-based resources were used by their teachers; the learners' perceptions of the frequency with which different ICT-based resources were used by them; the learners' perceptions of how useful they found the different ICT-based resources as part of their learning; and the learners' perceptions of the extent of which their skills have been improved by their personal use of technology outside college work. Section 8.2.2 on the other hand investigated the learners' perceptions of the technology support they received in the classrooms; the learners' perceptions of the technology support they received in the learning centres; the learners' perceptions of the technical support they



received in their college; and type of technical supports available to learners in FE colleges. Section 8.2.3 discussed findings on the learners' perceptions of the availability of technology resources in the colleges; the learners' perceptions of the accessibility of technology resources in the college; percentages of learners who used computers at home for studying; percentages of learners who accessed materials through the VLE from home or work place as well as at college; and the learners' perceptions of the problems of accessing the VLE from home. Section 8.2.4 examined the learner' perceptions of the VLE content of the courses that they accessed independently through the Internet compared to other contents; and the learners' perceptions (in general) on the electronic content of the courses that they accessed independently. Section 8.2.5 investigated the learners' perceptions of the technology impact and learning outcomes in relation to the increasing use of ICT and online learning while section 8.3 discussed the findings of the observational studies carried out during the case studies investigation in three FE colleges.

## **9.2 Main Findings**

This section presents the main findings of Chapter 4, Chapter 5, Chapter 6, Chapter 7 and Chapter 8.

### **The Main Findings from Chapter 4**

- The majority of the FE colleges had a wide variety of curriculum areas which used e-learning materials in teaching and learning. It was noted that the main



curriculum areas which used e-learning materials were highly variable within and between the selected FE colleges.

- The prevalence of e-learning materials used within and between FE colleges depended largely on the courses and the individual tutors, but the extent to which e-learning materials were used on the main curriculum areas depended mostly on the following factors: the courses and the subjects offered in each course; the individual tutors responsible for the specific courses and subjects; the availability of e-learning materials in the college's departments; and the level of confidence of individual tutors in the college's departments.
- The e-learning materials were mainly used as support and supplementary to the traditional teaching and learning methods, not to replace them.
- The most commonly used modes of delivery of e-learning materials in FE colleges were CDROMs, Virtual Learning Environments (VLEs), applications software, Intranet, Internet and videos. This study has suggested that applications software was the most popular mode of delivery of e-learning materials used, followed by VLEs, CDROMs, Intranet, Internet and videos.
- The Virtual Learning Environments have become increasingly popular as a mode of delivery of e-learning materials used in FE colleges due to their many outstanding features: interactive; easy to use; traceable; accessible from anywhere; wide range of tools and contents; can be used to personalise the students' learning preferences.



- The Internet and VLE were regarded as an important source for students and tutors to search and select information and to access the free online learning materials. Their greatest strengths as a mode of delivery of e-learning materials were clearly due to their outstanding feature which is that they are accessible from anywhere. Both the Internet and the VLE were however subjected to system related problems as they were relying 100% on the network system.
- The college Intranet on the other hand has the following disadvantages: it is subject to limited coverage and accessibility; there is no external access; and it is not suitable for playing movies (such activities will slow down the system).
- The primary sources of e-learning materials used in FE colleges were: self developed materials; materials purchased from commercial suppliers; materials obtained through external commissions; free online materials from the Internet; nationally produced materials by NLN, LSDA, FERL, JISC; shared materials from the Regional Repositories; materials obtained through collaboration with other colleges; materials obtained through an Exchange for Learning Projects, and materials purchased from the Association of colleges.
- Most FE colleges purchased e-learning materials rather than developed them themselves mainly because of the time factor and lack of expertise.
- In most cases tutors would only develop their own materials if: they could not find the materials in the market to cater for a very specialist course like Podiatry; to obtain materials which were tailor-made to a tutor's requirements; and to



avoid certain problems and difficulties if they were to use the e-learning materials purchased from commercial suppliers. Apart from purchasing materials from commercial suppliers or developing the materials themselves, some tutors *repurposed* others' materials to save time and money.

### **The Main Findings from Chapter 5**

- The e-learning materials were mainly used for the following learning activities: to support and supplement traditional teaching and learning in classrooms; as learning reinforcement outside classrooms; for conducting online assessments and quizzes; for simulation purposes; for research and assignment supports; for demonstrating skills and for practical skills; and for delivering online materials and information to students.
- Evidence from the survey's interviews has suggested that the e-learning materials were considered to be effective learning tools in FE colleges.
- There were many factors which influenced tutors in FE colleges to use e-learning materials in teaching and learning which include the following: they were used as support to traditional teaching and learning; the materials are interactive and easy to teach; a drive from the government to use e-learning materials; the materials are easily accessible; they can be used very effectively to make better use of resources and facilities in the classrooms; they were used to explain topics; enable tutors to personalise the students' learning preferences; stimulates and interests the students; they were used as variations to teaching;



they were used to include learners who are either excluded or not particularly switch on by the conventional method; the tutors strongly believed that it can support and enhance learning; and they were also used to reinforce learning.

- Results from the survey's interviews have suggested that there was certainly evidence to show that the e-learning materials enhance learning since all the respondents gave an indication to that effect.
- There was some evidence to show that the e-learning materials helped learners with different learning styles as they enable tutors to personalise the students' learning preferences and also because they allow tutors to accommodate the learning styles of their students.

### **The Main Findings from Chapter 6**

- There was no significant difference in terms of the learners' ability to use e-learning materials and ICT related technology and basically all of them could use computers and knew how to use the software for subject purposes.
- Information Technology is a Key Skills subject for most courses in FE colleges and although most of the FE colleges did not provide specific training programs for ICT they would normally ensure that their students attended the IT Key Skills courses.
- Most tutors had a reasonable level of ICT skills and some of them were quite experienced with handling students with different levels of ICT capabilities and competences.



- Most students came with a reasonable level of IT skills and it was the mature students who experienced some difficulties as they preferred the traditional learning methods compared to e-learning.
- Different approaches were taken by the teaching staff to deal with any variation in learners' ability to use e-learning materials and ICT related technology.
- It was noted that all the respondents indicated that they did have problems (some limited technical problems) in delivering e-learning materials in FE colleges but insisted that no major problems existed. The most common problems faced by the tutors in the delivering of e-learning materials were: problems of accessing the e-learning resources from home; problems of system failures; network-related problems; problems of incompatibility if the materials were not standard-based; and problems of easy access to the computer room.

### **The Main Findings from Chapter 7**

- The majority of teachers in FE colleges considered themselves enthusiastic towards ICT and technology in general and in teaching and learning. They believed that ICT and technology are valuable and essential and particularly useful for communicating with colleagues, for tracking learners' progress, for record keeping and registrations and for assessment purposes.
- ICT and technology were found to be very popular among teachers in FE colleges since 80% of the respondents confirmed using them for classroom teaching most of the time. ICT and technology were also found to be popular



and frequently used by the respondents in their office at college, at home, in workshops and learning centres.

- The new learning technology has certainly had an impact on the way teachers work over the last five years.
- The teachers' satisfaction level was found to be quite high in relation to the IT support received by them; the courses that were designed to improve their technology skills; and the courses that were designed to help them use technology in their work.
- The teachers' confidence level to deliver and support learning with ICT and technology was found to be high with 87% of the respondents considering themselves prepared compared to only 13% who were less prepared; and none of the respondents indicated that they were not prepared to deliver and support learning with ICT and technology.
- The use of ICT and technology in FE colleges was viewed to have positive impacts by the respondents as it creates a more enjoyable learning experience, leads to better record keeping, contributes to easier management of courses, making students more motivated, making students more employable and helping the college to achieve higher overall grades.
- The majority of the respondents believed that the students' learning outcomes had improved because of the application of technology and they predicted the same trend would continue in the future.



## **The Main Findings from Chapter 8**

- The learners perceived that only certain ICT-based resources were frequently used by their teachers (e.g. PowerPoint, Interactive whiteboards, Data Projectors and classnotes) as part of their teaching. Certain ICT-based resources were more frequently used by the learners than their teachers of which classnotes were found to be the most frequently used item by both sets of users.
- Certain ICT-based resources like discussion boards, video conferencing, CDROMs, e-mail comments, peripherals and mobile devices were not frequently used by the learners as part of their learning.
- The Internet was perceived to be very useful by the learners compared to other ICT-based resources and was considered to be the most important form of technology application in the teaching and learning environment.
- Most learners felt that their skills have been improved by their personal use of technology outside college work.
- The majority of learners were satisfied with the technical support they received and the availability and accessibility of technology resources in FE colleges.
- Although most of the learners used computers at home for studying, however only 39% of them accessed learning materials through the VLE from home and/or work place, as well as at college.
- The majority of the learners suggested that they do not have problems of accessing the VLE from home; some of them perceived that the VLE content of



the courses that they accessed independently through the Internet were generally better compared to other platforms (e.g. textbooks, TV and videos).

- The majority of respondents indicated that, generally the electronic content of the courses which were independently accessed by them were neither too simple nor too difficult to use and follow.
- The increasing use of ICT and online learning was viewed to have a positive impact as it may lead to more students continuing with the course; may lead to better grades; and able to help students to get a job at the end of their studies.

### **9.3 Overall Conclusions**

In Section 1.1 the thesis has clearly defined the research aims, which are: to investigate the application of e-learning materials to teaching and learning in post compulsory education (FE Colleges); to study the implications for the pedagogy of e-learning materials in these colleges; and consequently to determine whether the application of ICT and e-learning materials in teaching and learning has been implemented and taken up fully by the tutors and learners in the selected FE colleges. Apart from the research aims, the main objectives for carrying out this study as discussed in Section 1.4 are: to identify the range of settings in which e-learning materials are used in post compulsory education; to investigate the mode of delivery of e-learning materials used, to investigate the ways in which e-learning materials are used and the implications for the pedagogy of e-learning materials in post-compulsory education; to identify the teacher's and the learner's attitudes and perceptions of the application of ICT and e-learning materials used; and to identify the main issues considered crucial to the application of e-



learning materials used in FE colleges as they can have direct influences on the successful implementation of ICT and e-learning materials in these colleges.

The aim of this section is to present the overall conclusions of the research. To enable the researcher to draw out fair and unbiased conclusions, the overall research findings need to be analysed and to relate them to the specific research questions, the research aims and the research objectives. With the overall conclusions in place, the researcher hopes to ascertain whether all the research questions listed under Section 1.5 have been duly answered and to further determine whether this investigation has been successfully carried out and able to meet the stipulated aims and objectives.

### **Main curriculum areas which used e-learning materials**

The main curriculum areas which used e-learning materials were highly variable within and between the selected FE colleges which include the following: A-level courses; Advanced GNVQ courses; High Level GCSE courses; IT courses; Medical Science areas; Biological Science areas; Engineering courses; Languages; Business Studies; Art and Design; Constructions areas, Building Environments; Computing; Physical Education; Sport Studies; Health Studies; Travel and Tourism; Hospitality and Catering; Childcare and Caring; and Hair and Beauty. The extent to which e-learning materials were used in these curriculum areas depended mostly on the following factors: the courses and the subjects offered in each course; the individual tutors responsible for the specific courses and subjects; the availability of e-learning materials in the colleges' departments; and the level of confidence of the individual tutors in the colleges' departments.



### **Modes of delivery of e-learning materials used**

The most commonly used modes of delivery e-learning materials in FE colleges were CDROMs, Virtual Learning Environments (VLEs), applications software, Intranet, Internet and videos. Applications software was the most popular mode of delivery of e-learning materials used followed by VLEs, CDROMS, Intranet, Internet and videos.

### **Ways in which e-learning materials are used and applied in teaching and learning**

The e-learning materials were mainly used for the following learning activities:

- To support and supplement traditional teaching and learning in classrooms.
- As learning reinforcement outside classrooms.
- For conducting online assessments and quizzes.
- For simulation purposes.
- For research and assignment supports
- For demonstrating skills and for practical skills.
- For delivering online materials and information to students.

Generally the e-learning materials were used *for part of a session* although some respondents confirmed using them *for a whole session* in certain courses and subject areas. The e-learning materials were normally used with *the whole class* instead of *in groups* but there were cases when both arrangements were used i.e. in groups and with the whole class. The use of e-learning materials for classroom teaching was normally *planned by the teachers* instead of *on demand by students*.



### **Implications for the pedagogy of e-learning materials**

The majority of the respondents suggested that there is no particular aspect of the syllabus for which e-learning materials are particularly suitable although there was an indication that the e-learning materials are particularly suitable for certain courses or subject areas such as Medical Sciences, Biological Sciences, Law and Engineering. Evidence from the survey's interviews has suggested that the e-learning materials were considered to be effective learning tools in FE colleges.

There were many factors which influenced tutors in FE colleges to use e-learning materials in teaching and learning as reflected by Table 5.5. Results from the survey's interviews have also suggested that there was certainly evidence to show that the e-learning materials enhance learning since all the respondents gave an indication to that effect (Table 5.7) and the same results have suggested that there would be certainly an effect on FE colleges for not using the e-learning materials. This study has also provided some evidence to show that the e-learning materials can be used to help learners with different learning styles as they enable tutors to personalise the students' learning preferences and also because they allow tutors to accommodate the learning styles of their students.

### **Main issues related to the application of e-learning materials used**

This study has indicated that there was no significant difference in terms of learners' ability to use e-learning materials and ICT related technology and basically all of them could use computers and knew how to use the software for subject purposes. Most students came along with pretty good IT skills and it was the mature students who had



some difficulties as they preferred the traditional learning to e-learning. It was noted from this study that most tutors had a reasonable level of usability of ICT skills and were quite experienced with handling students with different levels of ICT capabilities and competences. Different approaches were taken by the teaching staff to deal with any variation in learners' ability to use e-learning materials and ICT related technology. Despite indicating that they did have some limited technical problems to deliver e-learning materials in their college, all of the respondents insisted that no major problems existed (Table 6.1)

Most of the FE colleges studied indicated that they have staff coordinating the e-learning facilities and responsible for ICT development and staff's teaching materials. They were also responsible for monitoring the dissemination of results and good practices of using e-learning materials in teaching and learning across the college. The FE colleges had to rely almost 100% on the internal funding arrangement to finance their e-learning facilities since only a small amount of external funding was received from outside organisations to carry out e-learning activities in the colleges. Obviously there was a lot of involvement with the main national organisations which are responsible for the development of ILT namely: JISC, NILTA, FERL, NLN, NILC, BECTA and ALT. The FE colleges were also involved in the Exchange for Learning Projects which develop learning materials in different subject areas; the commercial organisations which develop and supply e-learning materials; the Regional Repository of e-learning materials; the Regional Support Council; various user groups; as well as collaborating with other colleges on certain e-learning material projects and activities. The majority of the respondents indicated that they have identified at least one current



key development issue and has specific plans for ICT use in the near future as the key development issues and ICT future plans were considered crucial if they were to exploit technology and getting ICT and e-learning materials fully embedded across the curriculum.

### **Teachers' attitudes and perceptions on the application of ICT and e-learning materials used**

The majority of the teachers considered themselves enthusiastic towards ICT and technology (in general or in teaching and learning). They believed that ICT and technology are valuable and essential and particularly useful for communicating with colleagues, for tracking learners' progress, for record keeping and registrations, and for assessment purposes. ICT and technology were frequently used by the teachers for classroom teaching and for other purposes (office at college, at home, in workshops and learning centres). There was an indication that the new learning technology had certainly had an impact on the way teachers work over the last five years.

The teachers' satisfaction level was found to be quite high in relation to the IT support received, the courses that were designed to improve their technology skills, and the courses that were designed to help them use technology in their work. The teachers' confidence level to deliver and support learning with ICT and technology was also found to be high. The use of ICT and technology was viewed to have positive impacts by the respondents and majority of them believed that the students' learning outcomes had improved because of the application of technology and predicted the same trend would continue in the future.



## **Learners' attitudes and perceptions on the application of ICT and e-learning materials used**

The learners perceived that certain ICT based resources were more frequently used by them than by their teachers of which classnotes was found to be the most frequently used item by both users. It was noted that discussion boards, video conferencing, CDRoms, e-mail comments, peripherals and mobile devices were not frequently used by the learners as part of their learning. In contrast, the Internet was perceived to be very useful by the learners and was considered to be the most important form of technology's application in teaching and learning.

Most learners felt that their skills have been improved by their personal use of technology outside college work and the majority of them were satisfied with the technical support they received and the availability and accessibility of technology resources in FE colleges. Most of the learners suggested that they used computers at home for studying, but surprisingly only 39% of them accessed learning materials through the VLE despite confirming that they did not have problems of accessing the VLE from home.

Some learners felt that the VLE content of the courses that they accessed independently through the Internet were generally better compared to other platforms (e.g. textbooks, TV and videos). The majority of the learners indicated that generally the electronic content of the courses which was independently accessed by them were neither too simple nor too difficult to use and follow. The increasing use of ICT and online learning was viewed to have a positive impact on the students' learning outcomes.



## **9.4 Recommendations, Possible Contributions and Suggestions for future Research**

This is going to be the last section in Chapter 9 which is also the last chapter of the thesis. In this section the thesis will provide some recommendations, highlight possible contributions of the study undertaken and offer suggestions for future research.

### **9.4.1 Recommendations**

The research findings presented in the overall conclusions have answered almost all the issues been raised in the research questions except for the final issue listed which is to determine whether or not the application of ICT and e-learning materials to teaching and learning has been fully implemented by the selected FE colleges. The researcher considered this as the most significant issue which needs to be carefully addressed and concluded. Despite many positive results in most areas as has been highlighted in Section 9.2 and Section 9.3; and after analysing the overall research findings emerged from the survey and case studies, the researcher has come to the final conclusion that the application of ICT and e-learning materials to teaching and learning (with a special reference to e-learning skills and practices) has not been fully taken up by tutors and learners in FE colleges. The following recommendations which might improve the current situation will be the main focus in this section.

The aspirations of embedding and exploiting technologies in everything we do and getting ICT embedded across the curriculum for all subjects will require many players who can contribute to this learning revolution. So far the Government remains the greatest driver for change in post-16 learning and skills sector. The funding initiatives



through FERL, BECTA, NLN and other agencies such as JISC, support this drive. More flexible and pedagogically sound tools will offer learners enhanced learning opportunities.

Students coming into post-16 education bring a range of skills that could be utilised to create powerful learning experiences, both to access learning and to generate new and creative evidence of learning achievements. The current learners would prefer to use the latest technologies in their learning and are not content with the old traditional method anymore. To meet these demands, FE colleges need to offer effective and appealing courses of study in areas of learner demand or of strategic importance.

Many learners in post-16 sector have grown up with the Internet and mobile communication as an everyday part of their life. Understanding how learners experience these technologies outside their educational system is an important step to closing the gap between their everyday lives and the learning opportunities they are offered. The current students entering post-16 sector are more skilled at multi-tasking and less tolerant of traditional teaching processes.

The move away from traditional teaching and toward individual learning will continue as new materials and delivery system become more sophisticated. Individual learners will require more support as they progress through their individual learning programme. In the mean time, blended learning is expected to be the most successful approach, where technology enhances and supports traditional methods. Using this approach, all students' learning will be more self-directed within a course framework and supported



by the Virtual Learning Environment, the Intranet, the Internet, application software, videos and CDRoms.

For ICT and e-learning materials to be taken up fully by the FE sector, the tutors' role will be vital. The tutors in post-16 sector need further training to equip them with the skills to use the new technologies and opportunities on curriculum development. They need to be more open-minded and it is important for them to use the right channel at the right time.

Another important aspect is for the staff to be much more IT literate. Tutors need to be more articulate about using certain teaching methodologies and have a greater understanding of pedagogic theories and practices. They should exploit flexible learning opportunities and have a greater knowledge of course design for flexible learning. Apart from improving their IT skills, they should apply these skills to produce effective learning materials and other ICT-based learning resources.

Teaching and learning will change radically in the future, to become more flexible and learner-centred. An increase in the use of blended learning approaches would be anticipated. This would mean learners being supported through e-learning strategies both in the college and at home. The further development of VLE is also anticipated.

#### **9.4.2 Possible Contributions of the Research**

It is hoped that the findings and recommendations from this study would have some positive contributions towards the following institutions, organisations, authorities and the relevant stakeholders.



### ***The UK Educational Research***

When the research project was about to start in 2004, much research into ICT use in the UK has concentrated on the schools sector, whereas the use of ICT (e-learning materials in particular) in post-compulsory education (FE colleges) has not been researched to a significant extent either in terms of its effectiveness or the underpinning pedagogy. Having completed the research, the researcher sincerely hopes that it would benefit the UK educational research communities, as it may serve as a useful reference and source of information for detailed and recent findings on the application of e-learning materials to teaching and learning in post-compulsory education in the UK.

### ***The UK FE Sector***

It is also hoped that the findings from this study would be beneficial to the relevant stakeholders of the UK FE sector which include the college administrators, the inspectors, the awarding and regulation bodies, the developers and providers of e-learning materials, and most importantly the tutors and learners in FE colleges. It was felt that the thesis might provide some useful information to the relevant parties for them to have a better understanding of the current situation that exists in FE colleges before deciding on any measures to improve them.

### ***Dewan Bahasa dan Pustaka***

Dewan Bahasa dan Pustaka (DBP) is a government-owned publication house under the Ministry of Education in Kuala Lumpur, Malaysia which has fully sponsored the researcher's tuition fees and living expenses, throughout the research programme. The main activities of DBP are to engage in the publication and distribution of educational



books, journals, encyclopedias, dictionaries, educational magazines and other periodicals. As the senior editor in DBP, the researcher's main responsibility is to plan and to closely monitor the production of learning materials (paper-based and ICT-based) for students in secondary schools as well as those in the institutions of higher learning (mostly government-owned universities and colleges).

The outcomes from this investigation will definitely be useful to the researcher to develop an effective ICT based learning materials for a range of subjects; which can be used by learners from various age groups. In this way the research findings will not only contribute positively to the development of effective learning materials but it will also directly or indirectly benefit students and teachers in secondary schools, public and private universities, and colleges which have direct collaborations with DBP.

#### **9.4.3 Suggestions for Future Research**

The use of ICT in colleges is becoming more focused on VLEs. It is interesting that this is one area of ICT in which colleges have made more progress than schools. Virtually all colleges have a VLE. The issue comes back to pedagogy though. Anecdotal evidence suggests that VLEs are still used mainly as a place to store learning materials. This is good because it supports inclusivity. Students who are unable to attend classes for a variety of reasons, including the need to work to support their family, medical reasons or social reasons are able to obtain learning materials. However, there are many ways that a VLE can be used to support learning beyond being a store for learning materials.

Further work should focus on this very important aspect of e-learning. Specific questions could include:



- From a survey of colleges, what are the innovative ways that VLEs are used?
- What proportion of staff are involved in developing these methods and what training is in place to support them? This thesis has presented research that staff training is very important in the use of e-learning in colleges, so this is an important point.
- How do students use the VLE? This information could be obtained by using a survey of students, though non-participant observation would be particularly useful.
- What is the impact of the VLE on learning? How could this impact be improved? Are there particular groups that benefit from the VLE more than others?

The purposive sample used in this thesis (those colleges which had been identified as having good use of ICT) might have caused bias in the results and affected the generalisability of the findings. An important question is why other colleges have relatively poor use of ICT?

A difficulty encountered early in the work presented here was that it appeared that some colleges did not wish to take part in the study. These were not in the sample identified as having good use of ICT, so it could be concluded that their senior managers were reluctant to take part. Although this caused problems with gathering the data and may continue to cause these problems, it would be important to consider why the use of ICT was a problem. Perhaps other documentary evidence such as OFSTED reports would be



useful. Given that almost four years has passed since these colleges were approached, it is possible that their use of ICT has improved, and that their attitudes to discussing these issues has changed. It could also be worth using a different approach to the college that would enable appropriate data to be gathered. For example, in addition to documentary evidence, it may be possible to approach ICT managers, as they were the most helpful group in this study. Specific questions may include the following:

- What other perspectives were missing, i.e. other stakeholders? Most of the FE colleges had staff, students and ICT managers and most of their students were 16+, but what about the adult students' experience? It would also be worth considering the views of the part-time students, as their experience of ICT use is likely to be different from that of full-time students. At least the researcher does not think that the FE colleges distinguished between different student groups. What about vocational versus academic? It would be useful to compare the experience of these different groups. There are probably other staff groups that would be worth including. For example, what about the curriculum managers? Do their views differ from those of the ICT managers? After all, the curriculum managers probably hold the budget for purchasing materials, so their views, experience and expertise will be very important.
- Different subject areas should also be considered. What makes one subject different from another?
  - For example those with or without work experience placements.



- Simulation is more appropriate for some subjects, for examples bricklaying, electrical engineering and science.
  - Some subjects use ICT as a tool for examples Art and Design (Photoshop), Engineering (Autocad), and Accountancy (Sage).
- How does the pedagogy differ between these different categories of subject? Is it possible to categorise subjects by different models of ICT use?
  - The thesis included some discussion of the possible influence of learning styles on ICT pedagogy, but this could be expanded to include a formal analysis of learning styles using several different learning styles approaches with a view of making stronger links between the ways in which learners use ICT and their learning styles.

It is suggested that future research should also focus on the following:

- Effective use of subject-specific e-learning materials i.e. to study the effectiveness of using e-learning materials in Business Studies, Business Administration, Computing, Art and Design, Creative Arts, Film and Communication Studies, etc. in FE colleges.
- Effective use of technology-specific e-learning materials, i.e. to carry out independent study on the effectiveness of using the application software, the VLEs, Intranet and the Internet in FE colleges.



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## Appendix 1: The semi-structured interviews

### Question 1.

What are the main curriculum areas which use e-learning materials?

- *To what extent are the e-learning materials used on these curriculum areas?*

### Question 2.

What types of e-learning materials that you use?

### Question 3.

How are they used in teaching and learning?

- *Are they used for assessment?*
- *Are they used to simulate event?*
- *Are they used to reinforce learning?*
- *Are they used for a whole session or part of a session?*
- *Are they used with the whole class or groups?*
- *Are they used on demand by students or its used planned by teacher?*
- *How do staffs deal with variation of learner's ability to use the e-learning materials?*

### Question 4.

How effective are the e-learning materials?

- *Why are e-learning materials used?*
- *Is there any evidence that they enhance learning?*
- *Is there a particular aspect of the syllabus for which e-learning materials are particularly suitable?*
- *What would be the effect of not using them?*

### Question 5.

Who provides the e-learning materials?

### Question 6.

Do you design your own e-learning materials?



**Question 7.**

Do you encounter any problem in delivering the materials?

- *Are they delivered via the Internet, CDROM, VLE, the Intranet, video or Application software?*

**Question 8.**

How is e-learning organised in the college in terms of staffing?

- *Is funding obtained from external sources?*
- *Is one person possible for coordinating it?*

**Question 9.**

Who makes decision about what software to buy?

- *Is there a college ICT strategy?*

**Question 10.**

Is there any involvement with outside organisations with regards to ICT use in teaching and learning?

- *What are the key developments issues at the moment?*

**Question 11.**

What are the college's plans for ICT use in 3 years time?



APPENDIX 2: TEACHERS' QUESTIONNAIRES

Gender (Male/Female): \_\_\_\_\_

Age: \_\_\_\_\_

Department: \_\_\_\_\_

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*Please tick the relevant boxes*  
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TECHNOLOGY AND TEACHERS

How would you characterise your attitude towards ...

	1-Not at all enthusiastic	2	3	4	5-Very enthusiastic
<i>ICT/technology in general</i>					
<i>ICT/technology in teaching and learning</i>					

TECHNOLOGY USAGE

Question 1 How often do you currently use ICT/technology in ...

	1-Never	2	3	4	5-All the time
<i>Communicating with colleagues</i>					
<i>Assessments</i>					
<i>Marking</i>					
<i>Record keeping/registrations</i>					
<i>Tracking learners' progress</i>					



**Question 2** How valuable is ICT/technology in

	1-Not valuable	2	3	4	5-Essential
<i>Communicating with colleagues</i>					
<i>Assessments</i>					
<i>Marking</i>					
<i>Record keeping/registrations</i>					
<i>(Tracking learners' progress</i>					

**Question 3** How often do you currently use ICT/technology in...

	1-Never	2	3	4	5-Constantly
<i>Classroom teaching</i>					
<i>Workshops/learning centers</i>					
<i>Feedback/communication with learners</i>					
<i>Distance/online learning</i>					
<i>Your office/desk at college</i>					
<i>Your home</i>					

**Question 4** How valuable is ICT/technology in...

	1-Not valuable	2	3	4	5-Essential
<i>Classroom teaching</i>					
<i>Workshops/learning centers</i>					
<i>Feedback/communication with learners</i>					
<i>Distance/online learning</i>					
<i>Your office/desk at college</i>					
<i>Your home</i>					



**Question 5** To what extent has the new learning technology changed the way you work over the last 5 years?

Not at all	A little	Quite a lot	Completely

**TECHNOLOGY SUPPORT**

**Question 1** How satisfied are you with the IT support offered in relation to the following:

	1-Very dissatisfied	2	3	4	5-Very satisfied
<i>Use of the Intranet/VLE</i>					
<i>Hardware</i>					
<i>Staff development &amp; training for ILT</i>					
<i>Teaching materials</i>					

**Question 2** How satisfied are you with the courses that were designed to improve your technology skills?

1-Very dissatisfied	2	3	4	5-Very satisfied

**Question 3** How satisfied are you with the courses that were designed to help you use technology in your work?

1-Very dissatisfied	2	3	4	5-Very satisfied



Question 4 How well prepared do you feel to deliver and support learning with ICT/technology?

1-Not at all	2	3	4	5-Fully prepared

**CONTENT: CURRICULUM AND LEARNING MATERIALS**

Question 1 How often do you use the following methods and equipments for delivering learning and teaching in your classrooms or learning centres?

	1-Never	2	3	4	5-All the time
<i>PowerPoint</i>					
<i>Interactive whiteboard</i>					
<i>Video conferencing</i>					
<i>Data projector</i>					
<i>Stand-alone PCs for some students</i>					
<i>Network PCs for some students</i>					
<i>Stand-alone PCs for each student</i>					
<i>Network PCs for each student</i>					
<i>One PC for staff's or student's use</i>					
<i>Peripherals (cameras etc)</i>					
<i>Mobile devices (PDAs etc)</i>					



**Question 2** How often do you use the college VLE/Intranet on the courses that you teach.

	1-Never	2	3	4	5-All the time
<i>Post lecture notes</i>					
<i>Post seminar themes and questions</i>					
<i>Display course calendar/timetable information</i>					
<i>Tracking an individual student's progress</i>					
<i>Posting tests and quizzes</i>					
<i>as a notice board</i>					
<i>as a chat room</i>					
<i>Email feedback to learners</i>					

**OUTCOMES**

*Question 1* In your view, how much impact does the use of technology in teaching and learning have improve on the following outcome?

	1-No impact	2	3	4	5-Great impact
<i>Improved attendance</i>					
<i>Improved retention</i>					
<i>More enjoyable learning experience</i>					
<i>Making students more motivated</i>					
<i>Higher overall grades</i>					
<i>Making students more employable</i>					
<i>Better record keeping</i>					
<i>Easier management of courses</i>					



**Question 2** To what extent do you think students’ learning outcomes have improved because of the application of technology so far?

1-Not at all	2	3	4	5-A great deal

**Question 3** To what extent do you think students’ learning outcomes will improve in the future because of the application of technology?

1-Not at all	2	3	4	5-A great deal



Appendix 3 - Learners' Questionnaires

Gender (Male/Female):\_\_\_\_\_

Full time/Part time:\_\_\_\_\_

Age:\_\_\_\_\_

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*Please tick the relevant boxes*  
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1 TECHNOLOGY USAGE

Question 1      How often does your teacher use these as part of your learning?

	Every lessons	Most lessons	Some lessons	Never
<i>PowerPoint</i>				
<i>Interactive Whiteboards</i>				
<i>Data projectors</i>				
<i>Class notes</i>				
<i>Networked PCs</i>				
<i>Internet websites</i>				
<i>College websites</i>				
<i>Discussion boards</i>				
<i>Video conferencing</i>				
<i>TV/VCR/DVDs</i>				
<i>CD-ROMs</i>				
<i>Email comments</i>				
<i>Email for assessment feedback</i>				
<i>Peripherals (cameras etc)</i>				
<i>Mobile devices (PDAs etc)</i>				



**Question 2**    How often do you use these as part of your learning?

	Daily	Weekly	Monthly	Never
<i>PowerPoint</i>				
<i>Interactive Whiteboards</i>				
<i>Data projectors</i>				
<i>Class notes</i>				
<i>Networked PCs</i>				
<i>Internet websites</i>				
<i>College websites</i>				
<i>Discussion boards</i>				
<i>Video conferencing</i>				
<i>TV/VCR/DVDs</i>				
<i>CD-ROMs</i>				
<i>Email comments</i>				
<i>Email for assessment feedback</i>				
<i>Peripherals (cameras etc)</i>				
<i>Mobile devices (PDAs etc)</i>				



**Question 3**    How useful have you found the following uses of technology as part of your learning?

	1- Totally useless	2	3	4	5-Very useful
<i>PowerPoint presentations</i>					
<i>Using MS Office (Word, Excel, Access etc) applications</i>					
<i>Using Internet to find information</i>					
<i>Accessing information from CD-ROMs</i>					
<i>Accessing information from DVDs</i>					
<i>Using email</i>					
<i>Accessing the VLE/ Intranet</i>					
<i>Downloading lecture notes and messages from VLE/Intranet</i>					
<i>Using message boards and chat rooms on VLE/Intranet</i>					
<i>Using self-assessment tests</i>					
<i>Taking online tests and quizzes with instant electronic feedback</i>					
<i>Submitting work via email</i>					
<i>Following web links provided for extra information</i>					
<i>Tracking your own progress on the VLE</i>					



**Question 4** To what extent have your skills been improved by your personal use of technology outside college work? E.g. using Internet at home

1-Not at all	2	3	4	5-Very much

**2. TECHNOLOGY SUPPORT**

**Question 5** How are you helped to use technology in the classroom?

Face-to-face	E-mail	During lesson	Dedicated courses	In own time	Dedicated help desk	Mix approach

**Question 6** How are you helped to use technology in the learning centre?

Face-to-face	E-mail	During lesson	Dedicated courses	In own time	Dedicated help desk	Mix approach

**Question 7** How do you rate the technical support you receive in the college?

1-Very poor	2	3	4	5-Very good

**Question 8** What technical support is available?

Help desk telephone number	On-line help	Others



3. TECHNOLOGY RESOURCES

**Question 9** Are there enough open access PCs in the college for you to use in completing course work?

Yes	No

**Question 10** Are they accessible at times that are useful to you?

Yes	No

**Question 11** Do you use a computer at home for studying?

No	Yes, but have no Internet access	Yes, with dial-up modem Internet connection	Yes, with a broadband Internet connection

**Question 12** Do you access materials through the VLE (such as lecture notes, announcements, tests and quizzes) from home or your workplace as well as at college?

Yes	No

**Question 13** Do you have any of the following problems accessing the VLE from home?

Restricted times to use the Internet	Slow connections (Internet)	Interface problems	None	Other related problems



4. TECHNOLOGY CONTENT

**Question 14** Thinking about the VLE content of the course that you access independently through the Internet (at college, home, or work) compared to other contents (e.g. text books, TV and video), how much do you agree or disagree that ..

	1-Strongly disagree	2	3	4	5-Strongly agree
<i>It is more fun</i>					
<i>It is flexible</i>					
<i>It is more focused</i>					
<i>It is user friendly</i>					
<i>It is visually more stimulating</i>					
<i>I learn faster</i>					
<i>I remember more</i>					
<i>It is easy to use and follow</i>					
<i>It is more practical</i>					
<i>It is more reflective, it helps me learn</i>					
<i>I can do the work in my own time</i>					

**Question 15** In general, do you find that the electronic content on the courses you access independently is too simple, too difficult or about right?

Too simple	Too difficult	About right



5. TECHNOLOGY IMPACT AND LEARNING OUTCOMES

Question 16 To what extent do you agree/disagree with the following statements?  
Increased use of ICT/on-line learning:

	1-Strongly disagree	2	3	4	5-Strongly agree
<i>Will lead to more students continuing with the course</i>					
<i>Will lead to better grades</i>					
<i>Will help students get a job at the end of their studies</i>					



## Appendix 4

Faculty of Education

University of Central England in Birmingham  
Attwood Building, Perry Barr, Birmingham B42 2SU

Professor Roger Woods BSc, PGCE, DipEd, MA Dean

Telephone: 0121 331 7300/7312

Fax: 0121 331 7316

Date:

Our Ref:

Direct Tel No:

Dear

**Re: E-learning materials use in post-16 education in the West Midlands**

We are currently involved in a research project with the aim of identifying relationships between learning styles and the design of e-learning materials. At the moment our investigation is focusing on the models employed by post-16 institutions to incorporate e-learning into the curriculum.

Our survey of the literature, particularly Ofsted publications, has indicated that your institution has particular strengths in using ICT to enhance teaching and learning. We are interested in learning about the features of effective use of ICT in post-16 contexts with a view to refining our models of ICT use in the classroom.

We would be grateful for the opportunity to approach curriculum area heads with a view to arranging an interview of around thirty minutes on the topic outlined above. Naturally the anonymity of interviewees and the institution will be assured.

I would be grateful if you could confirm your agreement by returning the slip below in the reply-paid envelope provided.

Many thanks for your cooperation.

Yours sincerely

Dr Anthony Coles  
*Reader in Education*

Amran Jones  
*PhD student*

---

From:

School/ College:

Phone:

Fax:

email:

I confirm my agreement for you to approach curriculum heads to arrange research interviews for the above project.



# Appendix 5

Faculty of Education

University of Central England in Birmingham  
Attwood Building, Perry Barr, Birmingham B42 2SU

Professor Roger Woods BSc, PGCE, Diped, MA Dean

Telephone: 0121 331 7300/7312  
Fax: 0121 331 7316

Date:  
Our Ref:  
Direct Tel No:

Dear  
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-----  
-----  
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**Re: E-learning materials use in post-16 education in the West Midlands**

Thank you for your cooperation in the first phase of our study in which we conducted interviews with \_\_\_\_\_ on \_\_\_\_\_. We were very grateful for the opportunity to interview staff and some very useful data emerged.

Once again we would be most grateful for the opportunity to conduct semi-structured non-participant observations at your college. For this particular observation, the researcher will be a complete non-participative/non-intrusive/non-interventionist observer. Apart from interviews, observation is another important tool for us to gain insights into the effective use of ICT in teaching and learning in FE colleges. The anonymity of the groups or individuals being observed and the institution will be assured.

Kindly also be informed that we would like to also distribute structured questionnaires to the teaching staff and the students; participants of the observational studies. Our main objective of distributing the questionnaire is to investigate the teachers' and learners' attitudes and perceptions on the application of ICT and e-learning materials in your institution. The teachers' and learners' questionnaires will be used as additional method of data collection, to provide corroboration and triangulation. If agreeable, we will make contact with the staff aware of the project to arrange for the observations and distribution of questionnaires with their informed consent.

We would be grateful if you could confirm your agreement by returning the slip below in the reply-paid envelope provided or by emailing us at the address below.

Many thanks for your cooperation.

Yours sincerely,

Dr. Anthony Coles  
Reader in Education  
(Anthony.Coles@uce.ac.uk)  
cc.

Amran Jones  
PhD. student  
(Amran.Jones@uce.ac.uk)



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**I confirm my agreement for you to conduct class observations for the above project.**



**Appendix 6**

Faculty of Education

University of Central England in Birmingham  
Attwood Building, Perry Barr, Birmingham B42 2SU

Professor Roger Woods BSc, PGCE, DipEd, MA Dean

Telephone: 0121 331 7300/7312  
Fax: 0121 331 7316

Date:  
Our Ref:  
Direct Tel No:

Dear \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Re: E-learning materials use in post-16 education in the West Midlands**

Thank you for your cooperation in the second and third phase of my study in which I have conducted semi-structured non-participant observations and distributed questionnaires during \_\_\_\_\_ teaching session on \_\_\_\_\_.

I was very grateful for the above opportunities and would like to record my appreciations to the groups and individuals participated in the observational studies/questionnaires which form parts of my investigation into the application of e-learning materials to teaching and learning in post compulsory education in the West Midlands.

Thank you.

Yours sincerely

Amran Jones  
PhD student  
(Amran.Jones@uce.ac.uk)