

# EVALUATION OF PC LABS

## SUMMARY RESULTS OF A STAFF USER SURVEY

### INTRODUCTION

A survey of staff users of PC Labs was conducted to inform the University's ongoing commitment to develop its management and development of learning spaces. The survey was designed to investigate how PC Labs are used for formal teaching by staff and students and find out if their design can be improved to meet needs through ongoing refurbishment of AV facilities. A secondary aim of the research was to find out more about how PC Labs are used pedagogically towards discovering more about teaching needs and practices. Findings, therefore, will be used to inform facilities planning and to assist staff in making the best use of the PC Labs. Findings also inform the planning of other IT enabled learning spaces.

### BACKGROUND

Pretto (2011) notes that discussion on learning spaces has focussed more on collaborative spaces or student hubs in recent years and has neglected the formal accommodation of teachers and students who she classifies as regular IT users. While hub spaces have developed, PC Lab design in higher education appears to have been static, facilitating a 'stand and deliver' teacher-centred pedagogy. This contrasts with the design of other classroom spaces where developers have gone beyond uni-directional classrooms to create flexible, technology-integrated spaces supporting multi-directional active learning. Further, the advent of wireless technologies suggests the demand for serried banks of computers is likely to reduce and more blended use of technology will come to characterise teaching and learning in other types of learning space.

### METHOD

In December 2016, a review of the use of PC Labs and their future requirements was conducted by LEAD in collaboration with FD and DTS.

A survey was sent to all staff timetabled into a PC Lab for one or more sessions during the 2016/17 academic year.

In total, 703 staff members were identified (though many of these were listed as being part of a teaching team rather than clearly leading the session), and there were 197 responses to the survey - a 36% response rate. Of these respondents, 44 were from ACES (22%), 49 from D&S (25%), 60 from HWB (30%), 37 from SBS (19%), and 7 from central directorates (the Library and FD) (4%).

A mix of question types were used including open text fields for qualitative responses.

This document provides a summary of some of the key trends identified from the responses.

## RESULTS

### CLASS SIZE

The most frequent class size for a session in a PC Lab was 16-20 students (33.5%), with a slight weighting towards larger sizes than smaller ones (43.6% reporting a larger number and 22.9% a smaller one). 15.7% of sessions were reported as being at full room capacity (26 students).

### WAYS OF WORKING

Time in the PC Lab generally includes a high-proportion of time dedicated to the students actively working on the computer. 58% of respondents stated that the students are actively working on the PCs for at least 36 minutes of every hour in the room, with a further 25% reporting that the students spend between 25 and 35 minutes per hour on the PCs. The remaining time in sessions was typically taken up with students watching and listening to the tutor, such as for a demonstration or presentation. There was negligible reported time spent working with printed materials, whiteboards, etc.

While the labs are occasionally used for computer-based assessments (6.1% summative, 3.6% formative), the main purpose for using the labs is based around practical pedagogies. The most frequent of these are those where the student mimics the actions of the lecturer (16.8% watch-then-do, 14.7% live-follow-along), problem-based learning (13.7%) and project work (6.6% individual projects, 3% group projects).

### PURPOSE FOR USING PC LABS

Using a short taxonomy developed in Australia (Pretto, 2011) to identify the underlying pedagogical purpose(s) of a particular teaching session, respondents were asked to select any of the options that reflected their own practice. The results demonstrated a varied spread of uses, with only skills development (61.9%) and the learning of specific technical procedures (52.8%) being selected by more than half of respondents. In most cases options were selected by no more than a third of the respondents, including: applying knowledge developed in other teaching sessions (32%); creation of artefacts (27.9%); applying and practicing skills (25.9%); and, evaluating student learning and skills acquisition (23.9%).

### REASONS FOR CHOOSING A PC LAB OVER ANOTHER TYPE OF LEARNING SPACE

We wanted to understand more about why staff choose PC Labs. The responses revealed a wide variety of different pedagogic purposes and methods. These ranged from students creating blogs and videos for online publication, through to conducting and writing up individual research projects. A common use of the PC labs was for demonstrations and hands-on practical sessions related to discipline-specific software, while a lesser, but important use was as a space to run online phase tests and exams. PC labs are also used to develop information and digital skills in a supportive environment.

Less clear were models of integrated blended practice i.e. in the PC Lab the PC tends to be central to what happens, and is often the *focus* of the teaching rather than being a technical dimension of a flexible learning environment.

### RELATIVE IMPORTANCE OF TECHNICAL ASPECTS OF THE PC LABS

The most important aspects of the room are the performance of the student PC (54% very important, 23% quite important) and the presentation PC (43% very important, 27% quite important). The ability for students to create multimedia resources and presentations, print on paper or 3D printers were all minimally important.

In the free comments around this question, the most important factors frequently cited by respondents were the need for: the correct software to be available; PCs to be functioning properly and quickly; and, availability of internet access.

## GENERAL VIEW ON HOW WELL PC LABS MEET TEACHING NEEDS

The majority of respondents find the PC Labs at SHU meet their needs. Only 8.1% stated that they are less than adequate. 63.7% stated that they are more than adequate (47.4% very good, 16.3% excellent).

## FACTORS IMPORTANT IN FUTURE PC LAB DEVELOPMENTS

The retention of most current PC Labs is seen as important to their future development. For example, the ability to present and demonstrate to the class (98%), access to general software (98%), access to specialist software (98%), and the ability to easily observe student activity (98.4%) and give feedback (98.4%). Factors which were of less importance, but still desirable, included: students' ability to discreetly watch videos (65%) or listen to audio (63%), students' ability to work in groups (62%), use of electronic voting tools (51%), using relay screens for group work (35%), and being able to mix digital and analogue working, e.g. with whiteboards (34.5%)

## QUALITIES THAT WOULD ENHANCE EFFECTIVENESS OF PC LABS AS A LEARNING SPACE

Flexible furniture to support groupwork was identified as a key innovation with 70.6% identifying this. There was significant interest in other options however with clusters around the 50% mark: moving between PC and classroom tasks such as whiteboards (58.4%); students being able to easily move their focus to different parts of the room (55.3%); ability to hide PC screens to create more table space (48.2%); and, ability for students to use their own devices instead of in-room PCs (45.7%).

## FURTHER INVOLVEMENT

66 members of staff indicated that they would be willing to discuss their experiences and needs further as part of a focus group, and 39 volunteered to be part of any future PC Labs development group.

## SUMMARY

The results show that, where the labs are working effectively, they meet the current expectations of staff for formal teaching situations. **PC Lab provision (or similar) can be enhanced** however by developing them to support,

- greater production and use of multimedia;
- creating more space for students to work in small groups;
- integration of voting tools; integration of, and good access to, using whiteboards;
- incorporation of relay screens for group work;
- fold-away screens when working non-digitially or when focused on the presenter was also identified.

## BEYOND THIS STUDY

Further research would be useful. We do not know whether,

1. minor adjustments to features of the PC Labs would attract people not currently using the labs in their teaching;
2. a new learning space type is needed for scheduled teaching and/or non-formal independent study providing a more versatile space for active group-based teaching which is not configured as banks of computers.

This research sits alongside concurrent research into SCALE-UP technology-enhanced classrooms and an investigation to understand how students use the PC Labs informally is being planned.

## REFERENCES

Pretto, G. (2011). Pedagogy and learning spaces in IT. Proceedings of ASCILITE 2011 'Changing demands, changing directions', Hobart, 4-7 December.