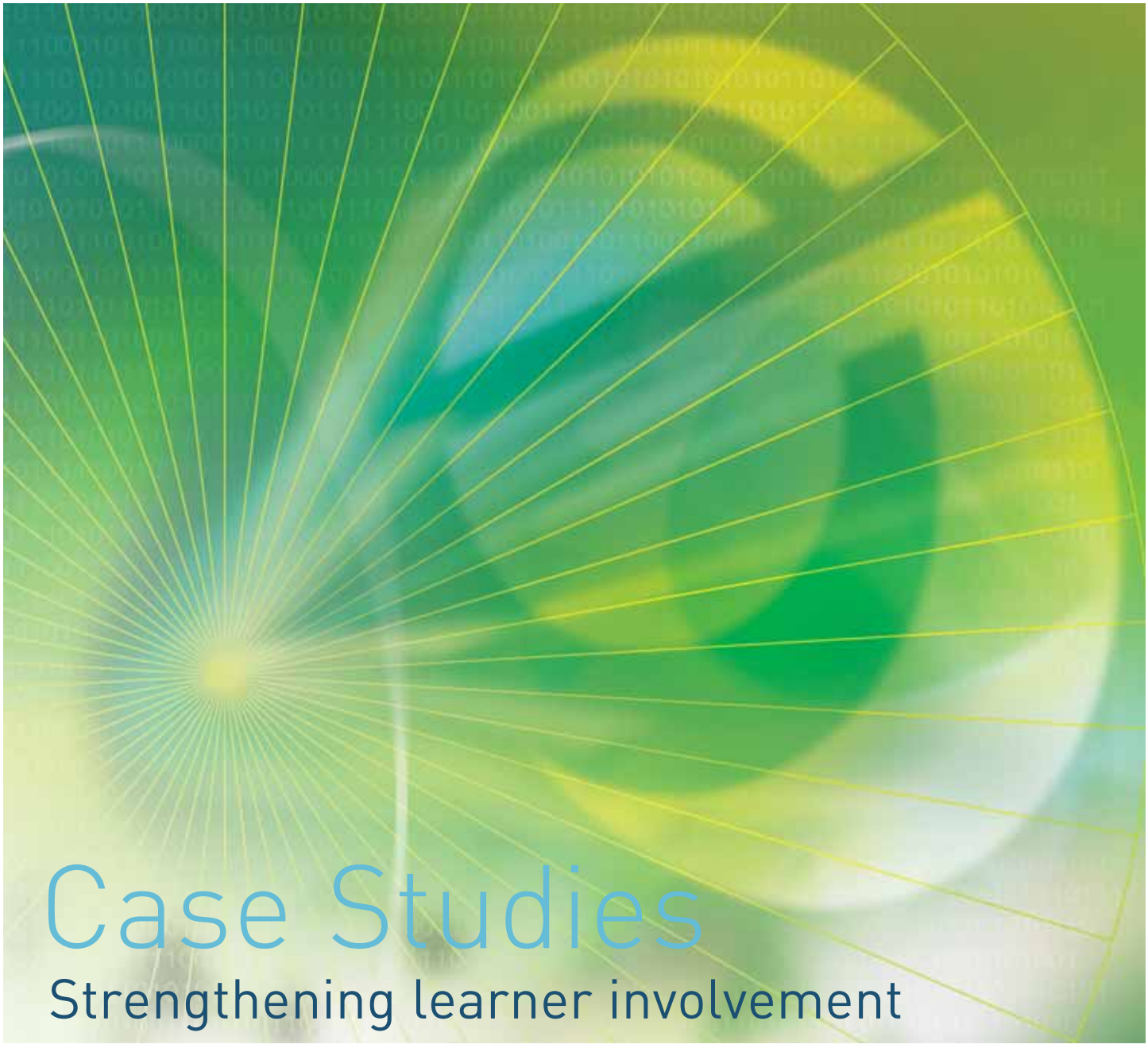
JISC

Innovative Practice with e-Learning



Case Studies

Strengthening learner involvement

A digital key to productive learning
University of Sussex

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Background

The Interactive Digital Educational Applications (IDEAS) Laboratory at the University of Sussex received funding in 2003 to undertake the Sussex Mobile Interactive Learning Environments (SMILE) project with a mixture of postgraduates and third year undergraduates on the Interactive Learning Environments course. This is an optional course offered within the Informatics Department in the School of Science and Technology.

The challenge

The SMILE project had explored the application of the O2 XDA to an educational context – the XDA is a personal digital assistant (PDA) integrated with mobile phone features. Students were issued with these devices to use as their own during the project, to develop and evaluate their own collaborative and interactive learning experiences within a broadly constructivist pedagogical framework.

However, this application of the XDA was outside of normal patterns of use, and resulted in time-consuming dialogues with the service provider and supplier. The start-up costs had also restricted the number of devices on offer. As a result, the undergraduates had to share devices with an average of one between three people.

Despite reservations over the suitability of the combined mobile phone/PDA as a tool for this purpose, students had responded positively during the project to mobile access to essential resources, and tutors still aimed to encourage greater ownership of learning materials in digital format.

Innovative solutions

A tool which offered a simple, cheap and unobtrusive solution was the USB storage device, sometimes known as a 'pen drive' or a 'memory stick'. The Sussex IDEAS Laboratory experimented with this simple technology by offering each student a 256 MB USB storage device to use during the spring term of 2004 as part of what became known as the 'Developing Interactive Virtual Applications' (DIVA) project. All course materials were provided on the storage device with a requirement for students to find and add new resources from their own research, which then had to be uploaded to a centrally shared resource bank.

While the USB storage device as a 'dumb' device offered no access to the internet or the course website, it could act as a bridge between contexts of use. Learning experiences in higher education typically involve the use of multiple technologies across a range of locations and contexts. Students quickly found the flexibility of the storage device invaluable, not only in storing found and newly developed resources of their own, but also in discussing their work with peers. Finding and sharing resources was a course requirement and formed part of summative assessment: analysis of usage of the storage device was recorded in a course log, resources were presented and discussed in seminars, and a snapshot of the content of each storage device revealed the extent of its use at the end of the course.

The main advantage of the storage device was that it was not seen as intruding in the learning process. The wide availability of access to IT for most students both on and off campus had diminished the value of continuous connectivity; the storage device, which is compatible with both Mac® and Windows® platforms, offered a 'one stop shop' for all the resources they required. For flexibility and sheer convenience, the USB storage device was preferred by students to the XDA. Most were reluctant to return it at the end of the term.

The technology

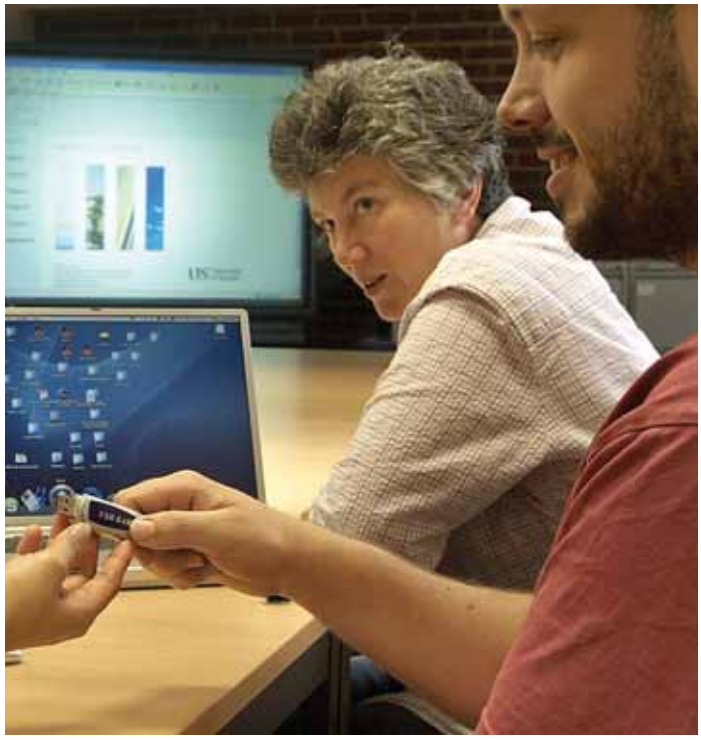
The USB storage device is a comparatively cheap technology costing approximately £10–150 according to storage capacity. To accommodate large files, devices of 256 MB were selected for the DIVA project.

USB storage devices are widely available and reducing in price. They offer some advantages over floppy disks and

"The students were fairly unexcited about being given the pen drives, but very reluctant to give them back."

Diane Brewster, course tutor, Interactive Learning Environments, University of Sussex

CD-ROMs for moving files from place to place: they are less likely to be damaged in transit and, as they are supported effectively on both on Windows and Mac platforms, large files can be copied rapidly from computer to device.



Making it happen

It is important to check if any USB ports within the institution, particularly in the learning resources area, are locked or inaccessible. Students using USB storage devices to carry important files between locations should make backup copies in case of loss. Unless devices are going to be given or sold on to students, conditions of return need to be clearly understood.

Key points for successful innovation

- Technologies need to be chosen in relation to the desired learning outcome – the focus should be on the value to the learner and not on the technology.
- Students need to be made aware of intellectual property rights (IPR) that may affect the storage and transfer of others' work.
- In some cases, transfer of viruses to the network may be possible. Use of storage devices should therefore be approved by a network manager.

Final word

Students who are encouraged to take ownership of course resources become more confident learners and develop into more productive and innovative thinkers. The USB storage device offered an effective way of achieving this.

For further research

Kukulska-Hulme, A. & Traxler, J. (eds) (2005) Mobile Learning: A Handbook for Educators and Trainers, Routledge

Focus on the technology – USB storage device

Learning and teaching potential

Can encourage student ownership of digital course materials.

Can support collaborative activities.

Enables continuity of work across different locations.

Risks

Loss of devices.

Network security clearance needed in some cases.

Support implications

None.

Accessibility issues

Benefits: The small size and portability of the USB storage device provide benefits for all learners, but particularly for those with visual impairment, for whom access to e-learning resources is easier than paper-based resources.

Constraints: Learners with motor problems may have difficulties in reaching the USB port.

Motor	Mobility	Hearing	Vision	Cognitive
✘	✓	✓	Possible Challenge	✓

Costs

Low per item.

Added value

Encourages personal ownership of learning.

Additional uses

- Summative assessment.
- e-Portfolio development.
- Promotional item for courses.
- MP3 playback and recording facilities and browser available on some models.

Key to the accessibility section: Ticks and crosses indicate where use of the device as described in this case study will support or disadvantage a learner with a disability. 'Possible challenge' is used where it is advisable for practitioners to check the degree of accessibility for individual learners. Definitions of the categories of disability are given below.

Motor	Difficulties in moving, controlling or coordinating movement of the body.
Mobility	Restriction in movement from place to place.
Hearing	Hearing impairment or deafness.
Vision	Visual impairment or blindness.
Cognitive	Difficulties in processing information as a result of a range of conditions, including dyslexia.