Abstract

The University of Melbourne actively supports the development of initiatives that provide students with a range of learning opportunities which embrace electronic technologies. This paper reports on the development and implementation of FLIP — a student-centred online flexible learning environment that supports and enhances lectures and tutorials, and can readily be adapted to individual subject requirements. FLIP was adapted from a pedagogical and technical framework (OCCA), and developed to support Bachelor of Early Childhood Studies students' understanding of concepts related to physical development. The site maintains progressive summaries of student work completed, ongoing evaluation, feedback in the form of annotations by tutors, and subject overviews containing status of submissions and messages from tutors. Students work individually and in groups to undertake a range of learning activities combining online structured tasks, reflective activities, collaboration, and tutorial feedback. Tutors are able to access a selection of pages providing optimised summaries of students' responses. In addition, they are able to adapt learning materials in response to observed student needs and annotate student work online. This paper summarises the development of FLIP and describes the learning and teaching features from the perspectives of students and tutors.

Background

University courses have typically involved a paper-based lecture/tutorial approach with an emphasis for on-campus attendance within a set timetable. Associated with socio-political changes particularly over the last decade, which have resulted in greater diversity amongst groups of students, universities are becoming increasingly responsive to the notion of increasing student access to learning through flexible teaching and learning environments. The following case study briefly describes the development and implementation of a student-centred online flexible learning environment funded through a University of Melbourne, Teaching and Learning (Multimedia and Educational Technology) Committee [T&L(M&ET)] Project Grant.

FLIP – A case study

The Flexible Learning and Interaction Project (FLIP) was developed within the Online Courseware Component Architecture (OCCA) which is a Web server run by Teaching, Learning and Research Support (TeLaRS) and initially developed by Paul Fritze (Fritze, 2001). The low level component framework features a database and associated functions for developing interactive, collaborative, reflective learning activities; and managing records of student work including summaries of work done and feedback from lecturer/tutors. FLIP was a response of the Department of Learning and Educational Development to the identification of limitations and difficulties associated with a subject, Physical Development, within the Bachelor of Early Childhood Studies. The subject requires students to become familiar with children's physical development and to develop observational skills which are imbedded in theory, for practical application. The subject was taught through the traditional paper-based lecture/tutorial approach with an emphasis on on-site attendance. As part of the subject, students were previously expected to...
undertake a child study using a traditional in-home observation, paper-and-pencil model. This raised problems with authentication and assessment, and some ethical issues. Students in the subject had limited opportunities for guided interactive and flexible learning and limited opportunity for collaboration in tutorial groups of thirty students. Students also had difficulty accessing, or chose not to access, important library-based audio-visual resources.

The aims of the project were:
1. to create a student-centred online flexible learning environment that supports and enhances lectures and tutorials and can be adapted to individual subject requirements within the Faculty of Education and other faculties;
2. to enhance student understanding of key concepts related to physical development;
3. to develop observational skills related to practical application;
4. to foster personal learning skills by engaging students in critical thinking, reflection and discussion; and,
5. to foster linkages between students and teachers.

**Approach**

The approach adopted by FLIP was to develop a range of online structured tasks using DreamWeaver, to supplement and enhance existing teaching and learning approaches through: interactive interfaces between staff and students and among students; techniques for open-ended and reflective questioning; documentation and overviews of student learning experiences; the use of audio-visual materials; and feedback between students and lecturer/tutors. A key feature was the ability for staff to update materials and activities as needed, to incorporate new activities or change the emphasis of tasks in response to student feedback or lecture content.

**Organisational outline**

The main topics and their content were identified by academic team members (Margetts and Ure). Learning was structured on three, three-week learning cycles. Students completed and submitted individual learning activities for the first two weeks of a cycle. Weekly tasks were accessed through the Overview. These tasks utilised online photographic and video images and other online multimedia resources as a basis for supporting student learning. Students could undertake these tasks at times and places of their choosing, and submit them online by a particular time and date. On the third week of the first two cycles, students worked in groups of three to revisit work undertaken during the previous two weeks and to submit revised responses for assessment. During the third week of the cycle, groups met during scheduled tutorial times which were conducted in computer laboratories rather than tutorial rooms. During this time group members discussed issues arising from individual work and made arrangements for the completion and submission of activities. As with the individual tasks, work could be completed at times and places of the students’ choosing to be submitted online by a set time. In the third cycle, the group activity involved a range of tasks designed to revise and assess student understanding of concepts related to Physical Development.

The organisation of the project is illustrated on the Individual Overview Web page in Figure 1. This Overview provided individual students with access to work to be completed on a weekly basis (left-hand column); a summary of work undertaken (second column from left); as well as access to their group overview. The ✔ indicated which weekly tasks had been saved as a work-in-progress, and the ✗ indicated if the work for the week had been submitted as work-completed. Students could access records of their comments to the lecturer/tutor, ✗, and feedback from lecturer/tutors (right-hand column). Students accessed their individual overview using their unique username and password which also provided access to their group overview and associated records. It was possible for the lecturer/tutor to communicate additional information to students through a ‘weekly message’ function. This was used, for example, to remind students of submission dates, or alert them to technical difficulties.

**Pedagogic elements**

**Video clips:** short QuickTime clips were incorporated to provide opportunities for students to make links between theory and aspects of development. The benefits of video include the ability for replay and slow motion, not available in real-life, to support student learning.

**Self-assessment/reflection:** pop-ups and roll-overs were used in association with some tasks to encourage students to self-assess initial responses against a set of criteria.

![Image](image.png)

**Figure 1.** Individual Overview page indicating weekly tasks, progress and feedback

*Weekly Message:* There is a difficulty with the Save function. Remember to save your work regularly
Reflection on previous work and collaboration: the group activities provided opportunities for students to revisit previous work and to share and refine their understanding of key concepts with peers.

Summary page: students were able to access a summary of their responses to tasks undertaken each week.

Tutor annotation/feedback: feedback to students from the tutor/lecturer included responses to student comments, assessment of work submitted, and other annotations including ‘rubber stamps’ such as a 🧵 or an 🤔.

Learning Portfolio: students were able to access progressive records of work completed, ongoing evaluation and feedback form tutors. The portfolio was easily accessible and students could print hardcopies for tutorials, review and study purposes.

Administrative elements

Progress: Records of student progress were provided with the following functions:

Save function: a save button enabled students to save work-in-progress. When this function was activated, a message appeared below the save button indicating the time and date that the particular task was saved; and a ✅ appeared on the weekly task page and overview to indicate that the task was ‘in-progress’.

Submit function: a submit button was provided on the weekly task page to enable the student to submit the work to the lecturer/tutor for assessment. When this function was activated students were unable to edit the tasks for that week and a 🗑️ appeared on the weekly task page and overview. In addition, the button was replaced with a message indicating that the work had been submitted, and the time and date of submission.

Tutor/lecturer overviews of student work and feedback to students: template pages enabled the lecturer/tutor to review and respond to student work. For example, a page provided the lecturer/tutor with an overview of whether or not students had saved or submitted tasks, access to the actual content of individual work, and access to student evaluation and comments. As well as the ability to scan student progress, it was possible to enter feedback to students through dropdown menus and comment boxes. Other pages provided optimised summaries of student work. Figure 2 gives an example of a tutor page.

Assessment of student work

Assessment was based on various aspects of the project activities undertaken including completion of individual learning tasks, group work, and an examination. The problem of authentication of work done outside supervised tutorial periods is noted, although this is similar to that for traditional written work. The allocation of marks for different activities and for attendance was designed to encourage participation and authentic work. Modification to previous assessment tasks occurred to reflect the change in focus of the course. Additionally it was expected that knowledge and understandings, skills and attitudes gained in this subject would be reflected in students’ linked teaching practicum. Student work was assessed on a range of criteria including completion of tasks, understanding of concepts, skill development, and evidence of reflection and analyses.

Project Evaluation

Ongoing formative evaluation was integrated and imbedded in materials to pick up patterns of student learning and involvement by using a set of questions that provided opportunities for students to express their feelings about the content of weekly activities, value to them, and any other comments or suggestions to the lecturer/tutor. This information was used to edit existing materials, inform the development of new materials, and provide feedback to students. Additionally, the data was used in the generic evaluation of the project. Summative evaluation at the end of the project involved students completing an online questionnaire and participating in a group discussion.

Some of the responses from students in the group discussion included:

1. What are your responses to FLIP as a method of learning?
   - ‘Seeing aspects of development on screen made it easy to make links with the lectures and the readings’
   - ‘It was less stressful than one or two assignments’
   - ‘Good for variety’.
Students appreciated being able to access FLIP from home while others were frustrated at the difficulty this sometimes presented, especially downloading Quick-Time clips.

Some students did not like the idea of group work revisiting work undertaken as individuals; some wondered why this was necessary.

2. What are your responses to the methods of assessment?
   Liked ‘working in a group and sharing ideas’ and ‘good for learning.’
   ‘It was good to be assessed on everything more thoroughly.’

Some students commented that it was ‘difficult if some group members did not share in the work.’

3. Do you think FLIP assisted you to make links between theory and practice?
   ‘It was good to have the videos and the questions’
   ‘It was good that questions related to tutorials each week’
   ‘Some of the tasks were a bit difficult, especially if you had missed a lecture’
   ‘I would have liked the right answers provided’

4. What did you like most?
   ‘I liked the visual aspect’. The ‘variety was good, but not for every subject.’
   ‘It was good to get comments and a picture from Kay’
   ‘It was easy to use and I liked doing work in groups’

Students commented that they liked doing work on a regular basis, ‘It was better than assignments.’

5. What didn’t you like?
Students generally reported that they did not like the technical problems e.g. freezing or losing work. However, they said that these became less with time and they realised that some were a result of their own computers or Internet providers.

One student commented that she would have liked to know if her answers were correct.

**Impact on staff and student workloads**

In the planning and development phase there was an increased workload for the lecturer in developing content and constructing and editing webpages. In relation to administrative tasks and student assessment, the project optimised views of student work and involved authentic online assessment tasks that were common to each student. This resulted in reduced time allocation for the marking of submitted work compared with time allocations involved with case studies undertaken by individual students in previous years. The use of drop-down boxes facilitated tutor feedback to students.

Changes for students involved the same time allocation for lectures, tutorials and personal study, although their nature changed. Students were required to allocate part of their tutorial and the time previously allocated to a child study, to the use of the online tasks.

**Future applications**

During regular lectures or tutorials, a page from a students’ learning portfolio could be used to address and clarify a particular area of difficulty or as the basis for discussion. Given the relative ease involved in developing and maintaining the site, and student response to the learning environment, it is envisaged that the templates developed in FLIP will be adapted for use in other subjects in the BECS, and made available to staff in other faculties.

**Discussion**

FLIP was a collaboration between the Physical Development academics, TeLaRS and the Faculty of Education Information Technology Unit (EDit). Through an action research process, OCCA elements were implemented, refined or developed to create a flexible teaching and learning environment that was relatively easy to administer and update. Staff adapted learning activities in response to student comments and feedback. From an academic perspective, the project challenged notions of what constituted effective activities. It was not just a matter of using particular technological functions and features, but rather considering educational principles within the given context and nature of the project. As noted by Fritze, Kavnoudias, Kemm and Williams (2001), simple activities had the potential to support a variety of learning. For example, a short open-ended question could be associated ‘...with self-assessment activities, feedback comments to tutors, indications of confidence, later reflection on the task...’, peer discussion, ‘...tutor assessment and guiding comments...’ and ‘...incorporation of other existing work and placement within a portfolio of work for the whole subject’.

In response to technical difficulties encountered by students and indications of increasing student competence with addressing and understanding of these difficulties, it would appear that the incorporation of technology into learning activities assists students to apply and better understand that technology.

**References**


Biographies

Kay Margetts is a lecturer in early childhood and primary education, Department of Learning and Educational Development, The University of Melbourne. Kay’s background as an educator, researcher and lecturer of undergraduate and postgraduate degree programs has provided her with experience and a solid and broadly based understanding of issues related to the design and delivery of relevant curriculum. Kay is currently project manager for 4 University of Melbourne IT Grants which have involved the adaptation of the OCCA framework developed by Paul Fritze and TeLaRS, to support enriched online learning environments for undergraduate subjects.

Christine Ure is Associate Dean (Preservice Programs) in the Faculty of Education at the University of Melbourne and a member of the Early Childhood team teaching at both graduate and undergraduate levels. Christine has worked closely with Kay in developing the adaptation of the FLIP framework for subjects in the Bachelor of Early Childhood Studies degree. Her background in physiology has provided a rich resource for the subject that provides the focus for this presentation; Physical Development.

Bridie Raban is the Mooroolbeek Professor of Early Childhood Education at the University of Melbourne and is also developing on-line materials for both undergraduate and post graduate students. With the development of the FLIP framework, there is now an environment for the expansion of further subjects on-line. The Development of Language and Literacy is the focus some further materials in this series, and Bridie is part way through this process. Her experiences with this new medium will also be explored during this presentation.

Paul Fritze is a member of the academic staff in the Teaching, Learning and Research Support Department within the information division at the University of Melbourne. Since 1991 he has worked within faculty and central educational technology units in the University within a variety of roles including instructional design, project management, software design, programming, evaluation, professional development and research. Paul's research interest is in the development of generalised frameworks for creating computer-facilitated learning and teaching environments customisable to local discipline requirements. He is the principle developer of the Online Courseware Component Architecture (OCCA).