

Centre for eLearning Innovations
and Partnerships in Science and
Engineering (eLIPSE)

School of Mechanical and Mining
Engineering

ANNUAL REPORT

2019

Supporting discipline experts to lead eLearning innovation

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About eLIPSE

INTRODUCTION

The Centre for eLearning Innovations and Partnerships in Science and Engineering (eLIPSE) provides software development services and technical support/maintenance services for bespoke eLearning technologies that originate from the needs of the students and the inventiveness of academics in the Faculties of Engineering, Architecture and Information Technology (EAIT) and Science. The tools that eLIPSE develops and supports solve problems not adequately addressed by existing commercial software. Development of prototypes for new tools is funded by internal grants (e.g. Faculty T&L Grants, UQ Teaching Innovation Grants) and maintenance is funded by support from the two stakeholder faculties.

As foreshadowed in the 2018 Annual Report, changes to the UQ policy on the *Establishment, Management and Closure of Institutes, Centres and Research Networks* meant that eLIPSE could no longer be classified as a centre, necessitating an organisational status review. As a consequence, discussions related to the future of eLIPSE were initiated by the eLIPSE Advisory Panel, the eLIPSE Leadership Team in 2018. During 2019, a submission was prepared for consideration by the two stakeholder faculties, which set out three options, the cessation of any service offering by eLIPSE having already been ruled out by the faculties.

Three options proposed were:

1. an **innovation plus maintenance/enhancement model**, which continued all the services currently provided by eLIPSE,
2. an **innovation-only model**, with proof-of-concept tools transitioned to internal or third-party commercial providers for maintenance and technical support, or
3. a **maintenance-only model**, which might include maintenance of applications not developed by eLIPSE.

The process of securing funding for ongoing positions to curate and carry out maintenance on existing tools was the focus of the submission. If the development of new tools were to continue, this would be funded from grant successes, as in the past. Input was sought from the teaching and learning committees of both faculties on the value of eLIPSE to their faculty.

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These meetings took place on 8 May 2019 (EAIT) and 17 May 2019 (Science). The committees were asked specifically –

- *How could eLIPSE support the Teaching and Learning mission for the Faculty?*
- *How could eLIPSE support enhancement of the student experience in the Faculty? and*
- *How could eLIPSE improve business processes related to course delivery?*

The view from the committees was that eLIPSE was already doing all of these things. From both committees, there was strong support for continuing eLIPSE as a unit, and the software development services as well as tools maintenance services/support were seen as critical to the success of teaching and learning in many of the schools.

Examples of the sentiments contained in comments from committee members included –

- The tools allow us to do things that are not possible elsewhere.
- Without eLIPSE, having to hire developers for individual projects would be a barrier to innovation; we need developers who have experience with UQ systems.
- It's strategically important to have this capability – both development and maintenance – it gives us agility.
- There is fear around eLIPSE not continuing – it would be crazy to take away this sort of support at the time that it is needed most – particularly if Blackboard might no longer be used and we need to transfer over the eLIPSE tools.
- MyPyTutor, developed by eLIPSE for CSSE1001, will be critical to the success of the new Engineering programming course.
- Without eLIPSE, our GetSet first year preparation tool (for both Science and EAIT) would not be sustainable.
- Support of eLIPSE for the use of Semant has been very important for the implementation of blended learning in MATH1061. Others in our school use many of the other tools as well and rely heavily on support from eLIPSE.
- eLIPSE software is a big part of the first year transformation for Science.
- eLIPSE staff interact directly with academics and tools can immediately be put into practice.
- Phil Waller and the developers are an essential source of advice and support.

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- eLIPSE is extremely valuable, and one of the few units that gives excellent and timely support from knowledgeable staff.
- If the University is serious about innovating in teaching and learning then, in the absence of capacity in ITS, this resource is needed.
- If the University is funding innovation via T&L grants then this capability is needed – otherwise the money will effectively be wasted. Science couldn't run a \$300,000 T&L Grant Scheme without eLIPSE.

The advice of the two committees to their respective executive deans was that the eLIPSE submission requesting funding to support eLIPSE tools maintenance and provision of support to EAIT and Science academics in the development of technology related teaching and learning grant proposals should be approved.

The executive deans of the two faculties agreed to a three-year funding plan with the costs split 50:50. Four positions to support maintenance/enhancement operations were approved as follows.

| Position | 2020 | 2021 | 2022 |
|---|------------------|------------------|------------------|
| Software and Business Development Manager (HEW 8) | \$141,271 | \$144,096 | \$146,978 |
| Web Applications Developer (HEW 6) | \$108,598 | \$110,770 | \$112,986 |
| Grad Web Apps Developer (HEW 5) | \$98,477 | \$100,447 | \$102,456 |
| Centre Admin Support | \$58,520 | \$59,691 | \$60,885 |
| TOTAL | \$406,867 | \$415,004 | \$423,304 |
| 50% share of total | \$203,434 | \$207,502 | \$211,652 |

The executive deans also determined that the Centre should be downgraded to the status of a unit (end-date 31 December 2019) and its reporting lines moved from the School of Mechanical and Mining Engineering to the Faculty of EAIT from 1 January 2020.

In its new guise, the unit would continue to offer both faculties full innovation and maintenance/enhancement services. The decision to continued funding for eLIPSE reflected a growing awareness in the University of the need to produce more 'learn' tools rather than

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‘teach’ tools. ‘Teach’ tools were didactic in nature, e.g. simulations, whereas ‘learn’ tools, encouraged active learning. The majority of eLIPSE tools fell into the latter category.

GOVERNANCE

Throughout 2019, the position of Director of the Centre remained unfilled. Oversight of the Centre was provided by the eLIPSE Leadership Team and a decision was made at the end of the year not to pursue the appointment of a new director and to maintain the role of the Leadership Team in management of the unit in 2020.

eLIPSE Advisory Panel

The eLIPSE Advisory Panel continued its consideration of the future of eLIPSE in the first half of 2019. It met once, on 27 March 2020, before the faculty teaching and learning committees were charged with assessing the value eLIPSE services contributed to the faculties and with making recommendations to faculty executive committees for final decision by executive deans.

Membership of the eLIPSE Advisory Panel in 2019 was as follows.

| | |
|---|---|
| Executive Dean, Faculty of EAIT (Chair) | Professor Vicki Chen |
| Representative, Executive Dean, Faculty of Science | Professor Michael Drinkwater, Associate Dean (Academic), Faculty of Science |
| Director, eLIPSE Centre | Vacant |
| Pro-Vice-Chancellor, Teaching and Learning | Professor Doune Macdonald, Pro-Vice-Chancellor, Teaching and Learning/Director Institute for Teaching and Learning Innovation (ITaLI) |
| Chief Information Officer | Mr Rob Moffatt AM, Chief Information Officer, Information Technology Services (ITS) |
| Academic staff member nominated by the Chair and the PVC (T&L). | Professor Ross McAree, Head, School of Mechanical and Mining Engineering |

eLIPSE Leadership Team

The eLIPSE Leadership Team met 16 times throughout the year, fulfilling its newly acquired role as the chief management authority for the Centre. The role of chair was shared by the two Program Directors.

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Meetings in the first half of the year were dominated by discussions of the proposal for a sustainable future for eLIPSE. In the second half of the year, the group hosted candidates for the leadership of the Centre.

Business development became a standing item on the agenda. Discussion of the desirability of sharing tools with other universities elicited a caution that the tools could be viewed as constituting a unique aspect of the UQ pedagogical experience and that it might be timely to rethink giving code away. There was a possibility that other universities could develop applications built on UQ code that could be used for competitive advantage.

Membership of the eLIPSE Leadership Team in 2019 was as follows.

| | |
|--|---|
| Director, eLIPSE Centre (Chair) | Vacant |
| Program Director, Research Excellence, eLIPSE | Deputy Associate Dean Academic (Curriculum Design & Teaching Innovation), Faculty of Science/Associate Professor Lydia Kavanagh, Director, First Year Engineering, Faculty of EAIT (Semester 1)/ Academic Lead and Project Manager, ITaLI (Semester 2) |
| Program Director, Technology, Tools and Learning Analytics, eLIPSE | Associate Professor Peter Sutton, Associate Dean (Academic), Faculty of EAIT (Semester 1)/Deputy Head of School Teaching and Learning), School of Information Technology and Electrical Engineering (ITEE) (Semester 2)/Project Consultant, Program Architecture Project, Office of the Deputy Vice-Chancellor, Academic (Semester 2) |
| eLIPSE Software and Business Development Manager | Mr Phil Waller |
| Educational Design Professional | Ms Marnie Holt, Educational Designer, Faculty of Science |
| Representative, ITaLI | Dr Greg Winslett, Deputy Director (Digital Learning) |
| Representative, ITS | Mr Daniel Goninon, Project Manager, Virtual Learning Environments Program, ITS Mr Richard Rerrie, Manager, Applications Development and Support, ITS (alternate) |

eLIPSE Achievements

PROJECTS OVERVIEW

A number of projects were awarded funding late in 2018 and completed by eLIPSE developers over the summer, in preparation for the commencement of Semester 1, 2019. These included upgrades to Semant, the Data-rich Scenarios tool and a Learning Resources Repository. The MOOCchat platform was adapted to deliver the functionality required for the Deep Concepts project.

Infrastructure support, maintenance and minor enhancement work was conducted on a portfolio of 22 existing tools.

Another source of tools that had potential to be transferred to eLIPSE for on-going maintenance and enhancement was identified when the School of ITEE nominated three tools developed as part of student projects in 2019, for which the School would have an ongoing need.

NOTABLE FOR 2019

1. T&L Grant Funding

The eLIPSE Software and Business Development Manager, Mr Phil Waller, continued his role in consulting to academics on potential projects with eLearning elements during their preparation of grant applications for Teaching and Learning (T&L) funding.

One Teaching Innovation Grant involving work for eLIPSE was awarded at the end of the year, *Expanding the capacity and functionality of the 4D Construction Learning Environment to incorporate additional case studies and virtual reality experiences*, a tool which eLIPSE had inherited and on which substantial work had already been completed.

Towards the end of the year, both faculties decided to cancel their faculty teaching and learning grant rounds for 2020, due to funding constraints imposed by the 2020 cohort dip, thereby reducing the funding for projects in which eLIPSE might have been involved in 2020.

The Software and Business Development Manager was successful in securing other paid work on projects for 2019 including set-up of theJourneyMaker for the UQ Business School, initially

to facilitate a review of the tourism curriculum as a pilot for wider use in that School, together with ongoing annual maintenance, redeveloped Shiny Apps for large-scale web deployment for the School of Biological Sciences, creation of an online credit management system for EAIT international admissions and enhancement of Platypus functionality for PHYS1002.

2. Relationships with ITS and ITaLI

Relationships with ITS and ITaLI continued to be cemented through the cogent and timely contributions to the eLIPSE Leadership Team from division representatives who were directly involved in policy development and service delivery for UQ's digital learning environment.

In clarifying eLIPSE's role in tools development for the submission to teaching and learning committees regarding the Centre's future, both ITS and ITaLI assisted by indicating how eLIPSE's work was complementary to, and not overlapping with, the roles of those divisions. ITS asserted that rapid prototyping of experimental tools sat outside its current capacity and remit. ITaLI confirmed that ITS mission involved creating and extending effective pedagogic practice, supported by tools where relevant, and the Institute was resourced to assess the eLearning landscape and thus make recommendations on the integration of tools developed by eLIPSE.

Advice that ITS (Virtual Learning Environment project) and ITaLI (Greg Winslett) were working together to develop change management processes for transitioning selected tools to ITS was welcomed by eLIPSE.

3. Staff Transitions

On 22 July 2019, Professor Lydia Kavanagh commenced a 0.2 FTE appointment in ITaLI as an Academic Lead and Project Manager. In the same month, her appointment in the Faculty of Science as Deputy Associate Dean Academic (Curriculum Design & Teaching Innovation) increased to 0.6 FTE.

From July 2019, Associate Professor Peter Sutton Peter took up the role of Deputy Head of School (Teaching and Learning) in the School of ITEE and a 0.5 FTE appointment as Project Consultant, Program Architecture Project, in the Office of the Deputy Vice-Chancellor, Academic.

With the departure of the Centre Director at the end of 2018, the burden of business development for the Centre became embedded in the duties of the Software Development Manager. A higher duties allowance was paid during 2019 with a submission for permanent reclassification of the position, and amendment of the job title to Software and Business Development Manager, made on 24 October 2019.

MAJOR PROJECTS

eLIPSE contributed services to the following UQ Teaching Innovation Grants projects throughout the year:

Jahn, I., Gollan, R., Hall, S., Waller, P., Fleming, M., Singh, S. *Lab in the Clouds: Using the cloud to deliver customised computing environments -- easily deployed for teaching at scale or remotely*. UQ Teaching Innovation Grant. \$67,773 over 2 years (new).

Kavanagh, L., Duck, J., Adams, P., Gannaway, D., McGrath, D., Copley, J. *TeachingPlus@UQ: Developing professional practice to enhance the student experience*. UQ Teaching Innovation Grant. \$165,000 over 2 years (continuing).

Lawrie, G., Kavanagh, L., Wheatley, V., Waller, P., Kartsonaki, E., Sharpe, P. *Developing authentic online assessment to support collaborative explanation and critical reasoning in large classes*. UQ Teaching Innovation Grant \$133,110 over 1.5 years (continuing).

Walker, S., Kavanagh, L., Mathieson, I. *A computer adaptive testing (CAT) platform for discipline-specific, English language screening tests to identify linguistically at-risk students*. UQ Teaching Innovation Grant \$47,000 over 2 years (continuing).

eLIPSE also contributed to the following projects funded by Faculty T&L Committees:

Carvalho, G., Jensen, P., Hu, S., Cameron, I., Siemon, G., Oehmen, A., Dwyer, J. *Integrative and immersive virtual learning framework for urban water engineering*. Faculty of EAIT Teaching and Learning Grant \$40,430 over 1 year (new)

Herndon, A., Noskoff, A. *High-Resolution curriculum and assessment mapping*. Faculty of Science Teaching and Learning Grant \$60,049 over 1 year (new)

eLIPSE Achievements

Reidsema, C., Kavanagh, L., Hall, S. *Student-led observation for course improvement (SLOCI)*. Faculty of EAIT Teaching and Learning Grant \$59,357 over 1.5 years (continuing)

Financial Summary

Financial Summary

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|---------------------------------------|----------------|
| <u>Income</u> | |
| Internal Grants won by eLIPSE Staff | 54,523 |
| Faculty Allocations | 524,948 |
| Fee for Service – eLIPSE Projects | 240,389 |
| TOTAL INCOME | 819,860 |
| <u>Expenditure</u> | |
| Salaries – Developers | 517,923 |
| Salaries – Research Staff | 100,134 |
| Salaries – Project Staff | 66,325 |
| Salaries – Administration | 46,089 |
| Workshops, General Operating Expenses | 33,550 |
| TOTAL EXPENDITURE | 764,021 |

Note: General operating expenses included recruitment agency fees.

Staffing

The following people were employed by, or affiliated *ex officio* with, the Centre in 2018.

AFFILIATED STAFF

Program Director (Research Excellence), Lydia Kavanagh, Faculty of EAIT/Faculty of Science/ITaLI

Program Director (Technology, Tools and Learning Analytics), Peter Sutton, Faculty of EAIT/School of Information Technology and Electrical Engineering/Office of the DVC (Academic)

Educational Designer, Marnie Holt, Faculty of Science

CENTRE EMPLOYEES

| | |
|---|--|
| Software and Business Development Manager | Phil Waller |
| Web Applications Developer | Joshua Hartmann (commenced 17 June 2019 on secondment from the UQ Business School) |
| Web Applications Developer | Cadellyn Laura (commenced 19 June 2019) |
| Web Applications Developer | Sandesh Maheshwari (resigned 3 May 2019) |
| Web Applications Developer | Elliot Ritchie |
| Graduate Web Applications Developer | Anant Tuli |
| Student Developer (casual) | Sophia Hooton (resigned 28 June 2019) |
| Student Developer (casual) | Jenna Macdonald (commenced 15 July 2019, resigned 12 December 2019) |
| Student Developer (casual) | Olivia Mackenzie-Ross (commenced 16 July, resigned 30 August 2019) |
| Student Developer (casual) | John Nguyen |

Staffing

| | |
|-----------------------------------|--|
| Research Data Analyst | Christopher Shadforth |
| Centre Administrator (casual) | Ellen Juhasz |
| Project Staff (all casual) | |
| SLOCI Coordinator | Ruben Kara Manning (resigned March 2019) |
| SLOCI Coordinator | Misha Lee |
| SLOCI Course Ambassador | Jordan Beiraghi |
| SLOCI Course Ambassador | Nathan Holyoak |
| SLOCI Course Ambassador | Constance Keenan |
| SLOCI Course Ambassador | Natalie Law |
| SLOCI Course Ambassador | Vy Le |
| SLOCI Course Ambassador | Krittika Mehta (resigned January 2019) |
| SLOCI Course Ambassador | Samuel Weir |
| TeachingPlus@UQ Project Manager | Vilma Simbag |
| TeachingPlus@UQ Learning Designer | Ellen Dearden (resigned April 2019) |

Contact Information

Contact Information

DIRECTORS

VACANT
Director

LYDIA KAVANAGH
Program Director (Research
Excellence)

PETER SUTTON
Program Director
(Technology, Tools and
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