CASE STUDY

Student Led Observations for Course Improvement (SLOCI): Closing the loop in course enhancement

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ABSTRACT

As universities strive to enhance course delivery and the student experience, typical end-of-semester course evaluations have been demonstrated to provide insufficient and potentially biased detail for course improvement and innovation. The Student Led Observations for Course Improvement (SLOCI) team at The University of Queensland aims to provide high-quality student experience data through a student-led approach. The team comprises current undergraduate university students who have a basic understanding of pedagogical strategies and methods of evaluation, bridging the gap between students and academics. SLOCI utilises a course partnership model to work with academics to identify key research questions that can direct and inform a process of real-time feedback. Since 2018, SLOCI has conducted 48 single-semester course partnerships and nine research partnerships focussed on other aspects of the student experience. The student experience data generated from these collaborations has underpinned improvements resulting in higher student engagement and better learning outcomes.

KEYWORDS

course enhancement, student feedback, learning design, student partnerships

The Student Led Observations for Course Improvement (SLOCI) team, established in 2018 in the Faculty of Science (FoS) at The University of Queensland, addresses a critical need of course coordinators in the process of enhancing student learning experiences: that of understanding student perspectives (Healey et al., 2016). In addition, SLOCI allows academics to work collaboratively with students—a process that is fundamental to the improvement of teaching and learning. As the SLOCI team is comprised entirely of current students, with support and training from academic and professional staff, the evidence they gather is both detailed and authentic. The team works to close the course enhancement loop through an adaptable and responsive course partnership model (Figure 1) and, in the process, define a new working relationship between academic staff and students in tertiary education (Fleming et al., 2018). The SLOCI initiative fits within the co-learning, co-designing, co-developing, and co-inquiring aspects of the Students as Partners model developed by Healey, Flint, and Harrington (2014).

Figure 1. The SLOCI intersection (Fleming et al., 2018)
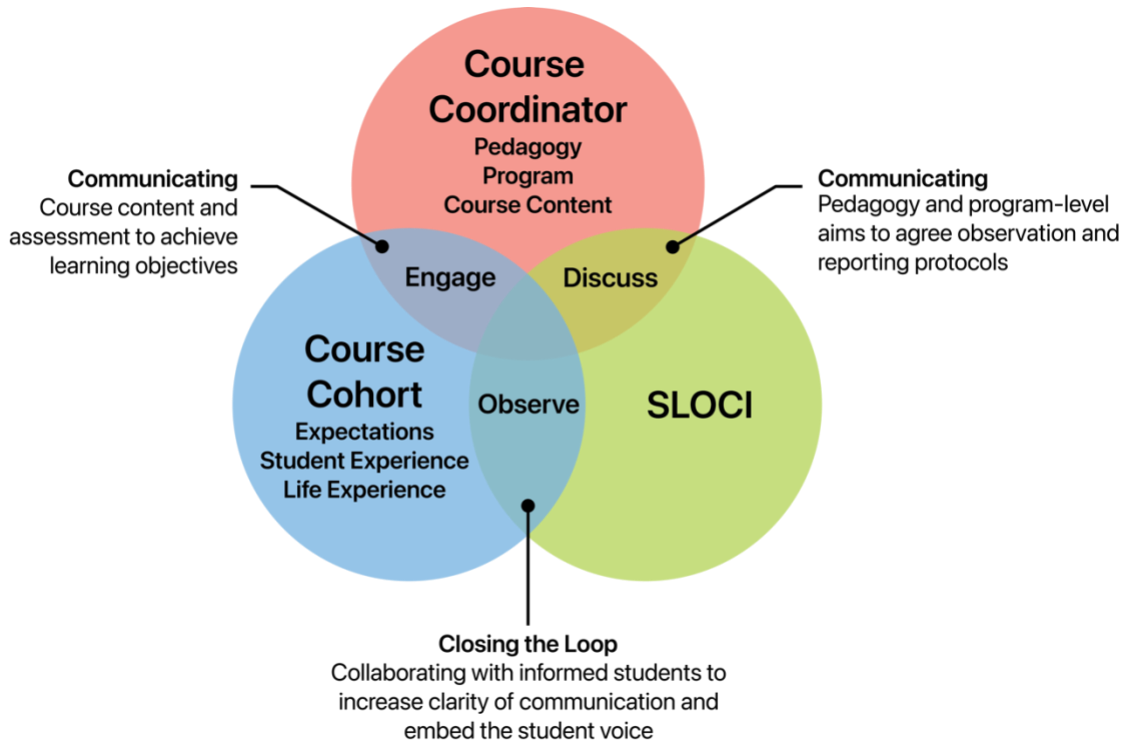
Gathering the evidence required to make informed decisions for course improvement can be challenging for course coordinators due to three factors: mostly perfunctory responses from a low proportion of students in automated course evaluations, the hierarchical nature of the academic-student relationship precluding genuine conversations (Cook-Sather, 2014), and a disconnect between the experiences of the course coordinator and that of the student (Bovill et al., 2016), which are discussed in turn below.

First, the all but universally adopted system of anonymous course evaluation conducted at the end of semester is not an effective method of data collection (Brown, 2008). Response rates are usually low and do not represent a true cross-section of the cohort, often capturing only those students who are at extreme ends of the scale (i.e., those who love or loathe the course) (Wolbring & Treischl, 2016). Moreover, students are not trained in the fundamentals of pedagogy and are therefore usually unable to report meaningfully on the effectiveness of a course or the ways in which a stated learning aim may have been achieved. MacNell et. al. (2015) and Kapadia (2021) have also demonstrated that factors outside a course coordinator's control, such as their gender or the arrangement of seating in a learning space, can bias student feedback.

Second, gathering evidence in support of decision-making can be challenging due to the hierarchy inherent in student-academic relationships. There is often a disconnect between students and the academic who (a) may not have the opportunity to explain the rationale for their course design or delivery, (b) represents a perceived conflict of interest through their responsibility for grades and/or, (c) differs in their expectations of outcomes from learning experiences.

Finally, a disconnect exists between the experiences of the course coordinator and that of the student (Bovill et al., 2016). The learning experience of a student in a course is connected to their background and current environment (Brinkworth et al., 2009). Therefore, a holistic approach to data collection is required with students engaged in a meaningful dialogue about more than just the learning experiences in a course. For example, understanding the broader context of students' workloads (i.e., beyond coursework) will better inform the design or improvement of course engagement activities and assessment timelines (Anderson et al., 2023).

SLOCI provides a response to these critical aspects by enabling real-time and authentic conversations with course cohorts, bringing a shared background and an understanding of the pedagogies used to the table, and removing the perceived power imbalance (Cook-Sather, 2014). When students talk with students, the barriers to communication caused by the fear of potential repercussions are removed, and honest and critical feedback can be given.

METHODS

The team
SLOCI comprises a full-time member of staff who manages training, budgets, and appointments; a student team leader; and approximately 10 student team members. The student team leader and staff member establish and manage the portfolio of course partnerships and provide reporting resources and guidance to student team members throughout the semester. Student team members are paid by the Faculty of Science (FoS) as casual staff to provide appropriate financial compensation for their work.

SLOCI membership is open to all students within the FoS; members are selected from diverse academic backgrounds to ensure that there are team members familiar with the content covered in a course partnership and that all year levels are represented. As students have a limited understanding of pedagogical practices and the science of learning, all team members are trained in the fundamentals of pedagogy, enabling them to have informed discussions with academics from the outset of the partnership.

The student team leader is responsible for allocating work appropriately to address the data collection and reporting timelines of each course partnership. Course partnerships are set up to enable all team members to contribute to the data collection process depending on their individual study load without necessarily being engaged with the overall progress of the specific partnership.

Course partnership model
The course partnership, initiated by the SLOCI team or a course coordinator, may be developed for a course that requires improvement, an initiative that requires evaluation, or an academic seeking feedback on their practices. The team works to a budget and hence academic oversight is required to determine which projects receive funding. Most partnerships are for a single-semester course.

The first meeting of the partnership determines the key questions and focus for the research; the range of inquiry undertaken by SLOCI is evidenced later in this paper through three very different case studies. Once the focus has been agreed, the data required to effectively address the research questions and the method and timeline for data collection are decided.

Changes in direction that may arise in response to findings during the research are built into the partnership plan developed at this initial meeting.

The SLOCI team collects and analyses data during the semester through the lens of the initial partnership questions. At agreed milestones, they deliver and discuss interim findings with the course coordinator to enable changes to course delivery during the semester and/or to the direction of the research. At a minimum, a course partnership will include one interim report that details initial findings, again providing a stage gate where directions and practices may be adapted.

The final report answers the questions posed by the course coordinator, from both the preliminary meeting and any subsequent discussions, and showcases findings that the SLOCI team have identified during the data collection process. It is written with the intent of providing a complete picture for the course coordinator, thus facilitating informed decision-making on course structure and content delivery. Unless specifically requested, SLOCI do not offer recommendations for course improvement as this is considered to be the remit of the academic.

Data collection

The SLOCI team has developed and improved a suite of resources for use in classroom observations, focus groups, and surveys to ensure consistency across our course partnerships. For the most part, SLOCI utilises an adaptation of the Classroom Observation Protocol for Undergraduate STEM (COPUS) methodology (Smith et al., 2013) that requires the SLOCI team member observing the learning activity to categorise and record the student and instructor activities every 2 minutes to provide a complete picture of classroom activity. The activity descriptions in the COPUS framework are divided into categories such as "active learning" and "receiving" and these have been expanded by SLOCI to account for online learning activities such as a "silent breakout room" or "technical difficulty."

Observations of course learning experiences (e.g., lectures, workshops, and tutorials) therefore enable the team to gather both qualitative and quantitative data (i.e., through SCOPUS) on student engagement and the effectiveness of the teaching methods used. Focus groups with and surveys of current students can also be incorporated into the partnership timeline to collect detailed qualitative insights on the student experience (Rowe & Wood, 2008). The course partnership plan details which of these data collection methods, or combination thereof, will be utilised to address the key research questions defined during the first meeting. SLOCI team members work collaboratively to analyse the data gathered during the semester so that findings can be presented in the final report and, optionally, in an interim report. This consistent approach to data collection means that we can partner with the same course over successive semesters and compare student experience data from each iteration.

OUTCOMES AND DISCUSSION

As of Semester 1, 2023, SLOCI has conducted 48 single-semester partnerships that have had a multi-faceted impact on students and staff. Academics that engage with SLOCI have become advocates of the team, promoting their engagement through word of mouth to their teaching community, and students have seen their voices heard and workable changes they suggest

implemented by course coordinators. As a result, the team are now oversubscribed for the allocated budget each semester, and course cohorts are eager to engage.

Three case studies are presented as evidence of this success and to demonstrate a range of ways in which the course partnership model may be applied. Note that different reporting has been used for each case, reflecting the range of aims and methods that were employed and demonstrating the versatility of SLOCI.

Case study 1: Single course partnership—3rd-year undergraduate chemistry

SLOCI was asked to evaluate the effectiveness of significant changes to content in a 3rd-year chemistry course which had altered the tutorials and end-of-semester exam and had led to some concerns around student engagement and assessment. This partnership was therefore devised around the following research questions:

1. Are students engaging with tutorial session content?
2. Do students believe that the assessment aligns with the course content?
3. Do students feel prepared for exams?

To address these questions, the SLOCI team observed three 2-hour tutorial sessions using the COPUS reporting scheme and held three focus groups. The observation data demonstrated that students remained engaged for the first 80 minutes of each tutorial with engagement decreasing thereafter. This disengagement was primarily attributed to students using their phones and participating in off-topic conversations. Figure 2 demonstrates that the student activities varied throughout the semester depending on the function of the tutorial. It shows the cumulative time spent on a given activity for all students in the three observed tutorials; there were 26, 12, and 19 students in attendance in weeks 3, 7, and 11, respectively. In some weeks the tutorial time was used to catch up on lecture content whilst in other sessions students were asked to complete worksheets.

Figure 2: Student activity in 3rd-year chemistry using the COPUS model
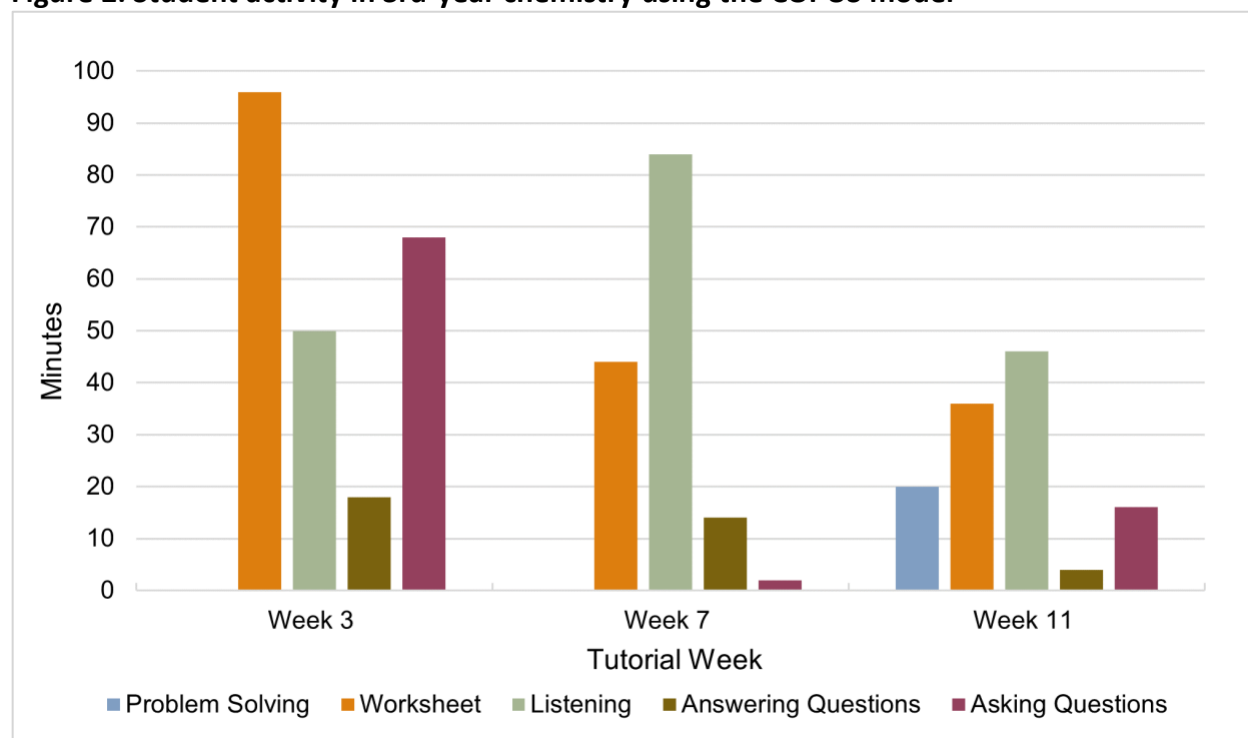
Focus group data revealed that, in general, students felt positively about the course and found the content less challenging than other 3rd-year chemistry courses. In addition, students enjoyed the distribution, weighting, and variety of assessment in the course, but they would have preferred more time to work through worksheet questions in the tutorials. This feedback combined with the tutorial observations resulted in the course coordinator changing the structure of the tutorials to encourage more active learning which, in turn, increased student engagement throughout the entire tutorial.

To address the second and third research questions, a focus group was held with students from the previous offering of the course. This session revealed that, whilst students enjoyed the course, many noticed that components of the lecture content did not appear in any assessment. Additionally, a focus group of students from previous semesters of the course revealed that students felt that the end-of-semester exam contained a question which penalised students for providing an incorrect answer in a previous question.

These findings resulted in a change to the final exam content for the current semester, and the restructuring of the question which students had identified as being "unfair." The improved end-of-semester exam was explored in a focus group of students who had completed the course that semester. They found that, while the marking scheme was considered fairer, the "improved" format of the exam was "too guided," and students felt "caught off guard" with the distinct style of questions. The course coordinator took this feedback on board and further improved the exam. The omission of content provided in lectures was still a concern, but overall the changes to the end-of-semester exam were beneficial for student outcomes. This is demonstrated by Figure 3 with the median student grade increasing from 50–65% in 2021 to 75–85% in 2022, the years in which SLOCI partnerships took place.

Figure 3. Student grades from the 3rd-year chemistry course over the past 5 years
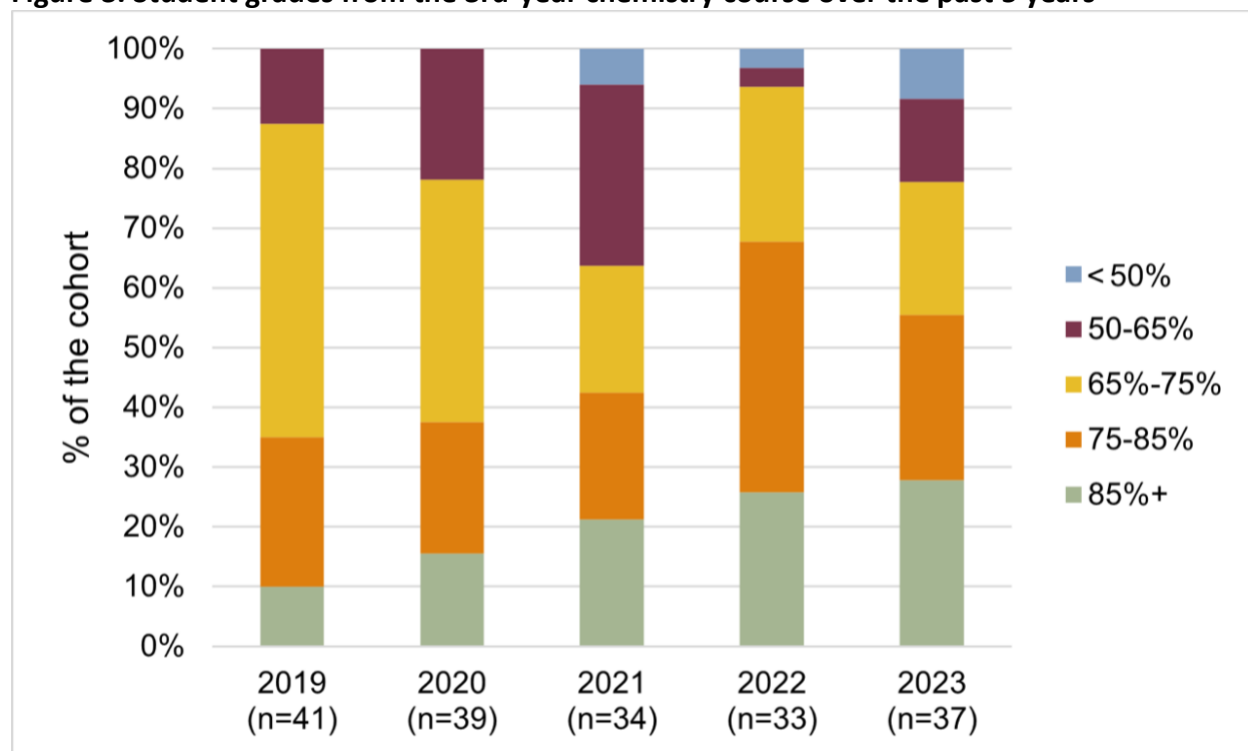
As a result of the SLOCI partnership, improvements were made to the end-of-semester exam and the tutorial structure was altered to encourage engagement and active learning. In addition, the course coordinator indicated that they would implement further changes to better align course content with assessment and meet the expectations of future course cohorts.

Case Study 2: Single course partnership over multiple semesters—1st-year undergraduate mathematics

A course coordinator partnered with the SLOCI team for seven consecutive semesters to understand the effects of changes that were implemented based on student experience data gathered in previous SLOCI partnerships. This approach enabled the SLOCI team to monitor a range of aspects of the course including the tutorial structures, assessment, online learning, and coding tutorials with analysis and reporting conducted at the end of each semester. At each preliminary partnership meeting, new research questions were devised based on changes that had been made to course delivery, and the course coordinator also described how the SLOCI data from the preceding partnership was used to inform these changes. Table 1 summarises SLOCI findings across the seven partnerships and the corresponding measures implemented by the course coordinator.

Table 1. Data and consequential actions from an ongoing partnership

COLLECTION METHOD	SLOCI DATA	ACTIONS FROM COURSE COORDINATOR
Focus group	Students expressed feeling motivated to stay longer when no one in their tutorial left early.	- Keep students engaged with purposeful tutorial activities. - Prevent a domino effect of students leaving class early through engagement and setting expectations.
Focus group	Students experienced an exam-like environment in their tutorial and felt anxious about time running out.	- Foster a welcoming environment by implementing an individual and collaborative activity during the tutorial. - Communicate that the collaborative tutorials have been designed to be completed in the allocated time.
Focus group	Students reported that individuals within a group would take over and fill out most of the sheet.	- Set expectations for individual input with the class and explain the pedagogy behind collaborative learning. - Use smaller groups to allow each student to participate in the collaborative exercises.
Focus group	Students noted disagreements between tutors during class. Tutors were either passive or dominated teaching opportunities.	- Ensure that tutors collectively discuss and plan how the lesson will run prior to the class to maintain consistency.
Observations and focus groups	Feedback stated that some tutors actively approached students while others waited for students to ask.	- Ensure that tutors actively engage with students.
	Observation and student feedback reported that tutors were delivering "mini-lectures."	- Limit didactic delivery to no more than 30% of the tutorial. - Reserve at least 70% of tutorial time for application and activity.
Observations	It was observed that a proper conclusion was lacking in most of the tutorials.	- Show the final PowerPoint slide, which directs students to various learning activities for the coming week before the tutorial ends.

The impact of this methodical improvement was evidenced by the course satisfaction score, obtained from an institution-wide student survey conducted at the end of each semester, which increased by 10% over the consecutive partnerships.

Case study 3: Cohort analysis—A major within the Bachelor of Science program
The convenor of a major was concerned about low uptake and asked SLOCI to identify the factors that might contribute to this. The partnership therefore developed the following questions:

1. What is the interest in the major?
2. Are there obstacles to studying the major?
3. How can support (including marketing) and relevant opportunities be provided to increase interest in the major?

The SLOCI team distributed an online survey and conducted one-on-one interviews to address these questions with the intention of closing the communication loop between the FoS academics and students.

A survey of current students who were undertaking the major revealed that there was a limited understanding of what the major entailed. Of the respondents, 70% did not understand what the focus of the major was, and this was found to be a significant deterrent for students to study the major. The suggestion to increase enrolment in the major was therefore to demystify it through promotion by the FoS and through student societies and clubs. It was suggested that this promotion should include information about career opportunities in the field.

One-on-one interviews with students aimed to identify the benefits and drawbacks of choosing this major offered in the Bachelor of Science and to understand the motivations of students who had selected it. The cross disciplinary nature of the major was the cause of both many opportunities and some obstacles. Students felt that the content was interesting and that the courses provided many opportunities to apply knowledge; however, students felt somewhat disconnected socially due to the small cohort and unique course list. In addition, they struggled to acquire cross-disciplinary skills as most courses in the major assumed a particular disciplinary knowledge which students may or may not have had. The SLOCI team identified that the course list for this major could be modified to promote a cohort experience.

Without the involvement of the SLOCI team, the backgrounds, interests and experiences of the current cohort would not have been clearly communicated to and understood by academics within the FoS. As a result of the partnership with SLOCI, the coordinator of the major reached out to a relevant university student association who agreed to promote the major to their members and, in turn, the coordinator promoted the club in various major-related activities. Students reported that they had an improved general understanding of the major and that there was amelioration of the social disconnect they had reported experiencing.

CONCLUSION

SLOCI has had a positive impact on the learning experience and outcomes for students at The University of Queensland as evidenced by increases in student grades, student responses to the institutional end-of-semester course feedback survey, and student perceptions of their experience. Observing and surveying course cohorts from the point of view of a student provides a different lens for academics, and this viewpoint can lead to the enhancement of the student experience. Returning to the opening discourse regarding the challenges of gathering evidence, SLOCI has enabled:

- the gathering of detailed responses from a cohort as opposed to the perfunctory nature and low numbers associated with responses from automated course evaluations,
- the gathering of genuine data as the hierarchical nature of the academic-student relationship is overcome, and
- a better understanding of the student experience through observation and evaluation by peers.

The evolution of the SLOCI method beyond the single-semester course partnership has enabled its application in a range of pedagogical contexts to provide feedback that would otherwise be difficult to acquire and process. The partnerships undertaken thus far, three of which have been described above, are an exemplar for how a students-as-partners program can be developed based on the evolving needs of a teaching and learning community.

In 2021, the SLOCI team were recognised by the FoS through receiving the Partnerships and Collaboration Award. The initiative continues to be funded by The University of Queensland as it has demonstrated that the data collected by closing the gap between academic and students transcends that received through the traditional end-of-semester survey.

NOTE ON CONTRIBUTORS

Shaun McAnally *received his Bachelor of Advanced Science (Physics) from The University of Queensland in 2021. While an undergraduate student, he was the student team leader for SLOCI from the beginning of 2019 to the end of 2021. Shaun is now a PhD student at the Centre for Organic Photonics & Electronics, School of Chemistry and Molecular Biosciences, The University of Queensland.*

Julia Buczynski *received her Bachelor of Advanced Science (Chemistry) from The University of Queensland in 2022. While an undergraduate student, she was a SLOCI member from the beginning of 2021 and a SLOCI team leader until she graduated at the end of 2022. Julia is now completing a PhD in organic chemistry at the School of Chemistry and Molecular Biosciences, The University of Queensland.*

Lydia Kavanagh *is a teaching-focussed professor at The University of Queensland. She is a Principal Fellow of the Higher Education Academy and spends her time equally between Academic Board as Deputy President and the FoS as Deputy Associate Dean Academic (Curriculum Review and Teaching Innovation). Lydia originally established SLOCI in the Faculty of Engineering, Architecture and IT in 2016.*

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