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Development of an online teaching-focused professional development program for junior teaching staff

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ABSTRACT

CONTEXT
The ongoing coronavirus pandemic required us to quickly adapt and familiarise ourselves with new skills and technologies in the shift to online teaching. Irregular communication due to extended lockdowns has meant that while knowledge on effective online teaching has been developed, this knowledge has not been properly disseminated to our junior teaching staff. As they operate predominantly in student-facing positions, it is essential that our junior staff be equipped with information on best practice in online teaching as well as with an awareness of the resources available to support them.

PURPOSE OR GOAL
To address the gap outlined above, we developed a new professional development program for our junior teaching staff, focusing mainly on online teaching. The goal was to share our collective knowledge on best practice in online teaching, and to demonstrate how various technologies could aid in promoting active learning in an online setting. The program also aimed to initiate a community of practice around teaching and the online teaching space.

APPROACH OR METHODOLOGY/METHODS
In designing our program, we considered student feedback from previous semesters, and more recent feedback on the online teaching experience from 2020. The final program covered the following topics: general advice, navigating Zoom and physical setup for online teaching, online tools for active learning, engagement within teaching teams, online feedback, and blended synchronous learning. Tools and technologies showcased in the program were embedded in the delivery to allow first-hand experience.

ACTUAL OR ANTICIPATED OUTCOMES
An exit survey indicated that in general, participants found the program useful, with an average rating of 8.27 (out of 10). The top areas that participants indicated that they would like more assistance were quizzes and tools for active learning (31%), providing feedback to students (22%), and blended synchronous learning (20%). Zoom (12%) and the physical setup for online teaching (15%) did not rank highly, in line with our observation that a large percentage of participants had some prior experience with online teaching in 2020.

CONCLUSIONS/RECOMMENDATIONS/SUMMARY
In summary, we piloted a professional development focused mainly on online-teaching for junior staff. The program was well-received, and the collected feedback will used for implementation and improvement of future run.

KEYWORDS
Professional development, mentorship, training, online teaching.

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Introduction

The ongoing coronavirus pandemic has required university academics to shift rapidly to online teaching (Ali, 2020). This has meant that academics have had to equip themselves with new skills and specific technological capabilities required to navigate virtual learning (Simamora et al., 2020). While this has meant that a sizeable body of experiential knowledge on effective online teaching has been developed, this knowledge has not been properly disseminated to our junior teaching staff. As it is our junior teaching staff that operate predominantly in student-facing positions (tutorials and workshops), it is important that they be equipped with information on good practices in online teaching, as well as with an awareness of the resources available to support them.

Having identified this issue, we developed a new professional development program (focused on online teaching) to support our junior teaching staff within the Faculty of Engineering and Information Technology at the University of Melbourne. The primary goal of our program was to share our collective knowledge on good practices in online teaching, and to encourage the implementation of various digital technologies to support active learning in online settings. The program also allowed us to promote our team members as points of contact for future support, guidance, and mentorship, initiating a community of practice around navigating the online teaching space.

In this paper, we describe the approach taken to design our program and identify the areas flagged as requiring more support in future iterations. The role of our program in initiating the formation of a community of practice around effective teaching is also discussed using the conceptual framework for social learning systems (Wenger 2000).

Background

Online Learning

Online learning, including blended and fully online courses, has become a common aspect of adult education in the last two decades (Allen & Seaman, 2013). However, not all is perfect in the online landscape. Educators continue to report many challenges involving content creation and delivery, which can take more time and effort than when compared to traditional face-to-face approaches (Oliveira et al, 2021; de Barba et al, 2020; Allen & Seaman, 2015).

In this context, Dunlap and Lowenthal (2018) identified and recommended four themes to promote more effective online course design and facilitation: (a) supporting student success, (b) providing clarity and relevance through content structure and presentation, (c) establishing presence to encourage a supportive learning community, and (d) being better prepared and more agile as an educator. After analysing their themes with experienced online educators, the authors highlighted that the highest number of recommendations in their study aligned with the “presence” theme. Online educators commented on the importance of connecting with students, helping students connect with each other, and helping students feel they are members of a supportive learning community. Garrison, Anderson, and Archer (2000) developed the Community of Inquiry (CoI) model, which significantly influenced the themes identified by Dunlap and Lowenthal (2018), to describe how the interplay between teaching presence, social presence, and cognitive presence are foundational to the development of deep and meaningful educational experiences in online courses. The CoI model emphasizes balanced instructional attention to teaching, social, and cognitive presence in order to cultivate an engaged online learning community (Lowenthal & Dunlap, 2014).

The disruptive effects of the ongoing COVID-19 pandemic have impacted almost all sectors of our society. Higher education is no exception, and the paradigm has shifted from one characterised by on-campus face-to-face learning to one involving almost entirely online

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learning. Students face an increasingly uncertain environment, where financial and health shocks (for example, lack of resources to complete their studies or fear of becoming seriously sick), along with the transition to online learning may have affected their academic performance, educational plans, current labour market participation, and expectations about future employment (Aucejo et al., 2020). Educators have also had to quickly transition to online teaching, which meant learning to use digital tools to promote interaction and collaboration, nurturing a sense of community by redesigning their curriculums and activities, and making use of asynchronous tools to allow communication with offshore students (Oliveira et al, 2021). The "presence" theme identified and discussed by Dunlap and Lowenthal (2018) has become even more necessary and urgent due to this rapid and large-scale shift to online delivery.

To address the challenges identified above and to support new/junior teaching staff within the Faculty of Engineering and Information Technology at the University of Melbourne in this transition to online learning, we developed a professional development program focused on the use of digital tools, active learning, and ways of establishing presence to encourage a supportive learning community.

Social Learning Systems & Communities of Practice

We aligned our program with the conceptual framework for social learning systems proposed by Wenger (2000) and with the presence theme identified by Dunlap and Lowenthal (2018). Within social learning systems, expected boundaries of knowledge and competencies are established over time by relevant communities of practice. Communities of practice here have previously been defined (Wenger et al., 2002) as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis". Wenger (2000) proceeds to describe these communities as being characterised by two components: competence and experience. In our context, "competence" might refer to the practical online teaching knowledge that more senior academics have accumulated via experimentation over the course of the pandemic thus far. "Experience" then might refer to the transfer of this knowledge to our junior teaching staff members. In line with this framework, one of our program's long-term goals was to help foster a stronger culture and community dedicated to the discussion and exchange of effective online teaching practice – one that includes junior teaching staff.

Approach

Program Design

In designing our program, we considered student feedback from both department-based tutor/demonstrator surveys and formal University-level subject evaluation surveys conducted in previous semesters. In line with our program's focus on online teaching, we also considered the findings of a report published by the University on the common problems encountered by students during the initial shift to online teaching in Semester 1, 2020 (the main goal of this report was to identify areas where improvement was needed in Semester 2, 2020). From this report, student interaction and engagement, academic staff presence, and clarity of information and communication were identified as key areas that required attention. Here, interaction and engagement include not only interactions with teaching staff, but also interactions between students. It was recognised that the shift of teaching to an online environment had changed the nature of these interactions, and that efforts had to be taken to properly nurture and support students. In a separate panel discussion with students, they noted, for example, that they did not have as many opportunities to study together in the shift to online teaching. Academic staff presence here relates to the availability of teaching staff, but also encompasses the quantity and quality of feedback provided to students to help them gauge their progress through their subjects. Finally, clarity of information and communication refers both to the structure of the

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content being taught in an online setting, as well as guidance to students on how to engage with the available online materials and tools.

As an outcome of our analysis of the aforementioned surveys and reports, we designed a two-hour program agenda around the following topics: an introductory icebreaker session, general advice for teaching in an online context, navigating Zoom and its features, the optimisation of physical setups for effective online teaching, digital tools to support active learning, engagement and initiative within teaching teams, online feedback mechanisms, and blended synchronous learning. Various digital tools and technologies showcased in the program (breakout rooms, Padlets, PollEV, Kahoot) were embedded in the delivery of the program, allowing attendees to experience their functionality first-hand. Brief descriptions of each of these areas of focus are included as follows.

Introductory icebreaker session

The first ten minutes of the program was used to conduct an icebreaker session. Participants were assigned into breakout rooms where they introduced themselves to each other. To provide structure, we recommended that each person mention their name, department, past teaching experience (if any), subjects they would be teaching into, and favourite food. We felt that this icebreaker session was necessary to help initiate a sense of community and camaraderie amongst our junior teaching staff members, many of whom are used to performing their teaching duties in relative isolation from the wider teaching community. The second benefit was to demonstrate how such an activity can be used to foster interactions between students in an online environment.

General advice for teaching in an online context

Our program was pitched at junior staff members with a wide range of teaching experience, from those about to teach for the first time, to those with several years of experience. While this section was primarily targeted towards newer staff members, we hoped that its inclusion would also prompt more-experienced attendees to reflect on their current teaching practices and to consider how small-group teaching might translate from face-to-face teaching in the transition to an online environment.

Areas covered included providing students with a supportive learning environment, how class preparedness is more important than having answers to everything, and methods of promoting both teacher-student and student-student interactions in an online environment. Attendees were split into breakout rooms and were encouraged to use Padlet to document how they have – or plan to – foster supportive and active learning environments in their subjects.

Navigating Zoom and its features

Due to the global pandemic and subsequent lockdowns, many classes that were previously held face-to-face were held over Zoom, such as tutorials and workshops. Zoom has many useful features that can be leveraged for a valuable online classroom experience. While most attendees had some experience participating in Zoom meetings, many had limited experience when it came to managing a class in such a setting and maximizing the value of Zoom's features. Various features of Zoom were discussed, including how to schedule meetings, waiting rooms, recording capability, muting participants, breakout rooms, polls, whiteboards, and screen sharing. Further resources with greater details on particular processes were also made available to the participants.

Optimisation of physical setups for effective online teaching

Online teaching requires a different physical setup from that of face-to-face teaching. It is important that the tools and setup to be used are properly considered and optimised, from both the perspective of effective student learning, as well as the perspective of staff health, wellbeing, and safety.

Topics discussed included effective communication of materials, microphones, cameras, iPads/Tablets, and the use of webcams as document cameras. Attendees were also directed

to resources for booking teaching pods containing all the equipment required for effective online teaching. Attendees were then split into breakout rooms, where they took turns testing their microphones and cameras, sharing their screens, and switching between their devices.

Digital tools to support active learning

There are many digital tools available that can help engage students and aid active learning in an online environment. They can be used to facilitate students interacting with both the teaching staff and with each other in different ways. In addition to the various features of Zoom, there are tools that can be used both in conjunction with synchronous online classes as well as asynchronous activities. Tools discussed included Kahoot!, Poll Everywhere and Padlet, as well as those available within the Canvas Learning Management System, such as quizzes and H5P interactive videos.

Engagement and initiative within teaching teams

Our junior teaching staff cohort consists largely of PhD candidates and high achieving Master's students. As many of them have plans to pursue academic careers, it is important for them to gain hands-on teaching experience. While this is the case when it comes to content delivery, many of them get minimal exposure to the behind-the-scenes aspects of teaching, for example curriculum design, content creation, and the exploration and setup of new digital learning platforms.

In this section, junior teaching staff were recognised as important bridges connecting students with lecturers, and vice-versa. They were encouraged to not merely deliver content, but to engage in proactive teaching. This might involve improving on existing teaching resources, developing new resources, and alerting subject coordinators of issue areas – and offering viable solutions. Several examples of such initiatives by past tutors/demonstrators were showcased, including projects revolving around the production of short concept-based video tutorials, question bank expansion, and the introduction of new programming-based workshops revolving around MATLAB Grader.

Towards the end of this section, attendees were encouraged to think beyond just content delivery, and to consider themselves as active contributors to the continuous improvement of their subjects. In many cases, internal teaching grants are available for subject development, and when working together with the subject coordinator, junior teaching staff members can make a large impact on subject delivery and materials, and ultimately the student learning experience.

Online feedback mechanisms

Feedback is a very important influence on student learning (Hattie and Timperley, 2007) but students report that it is often done poorly in higher education (Dawson, Henderson et al. 2019). While some student feedback comes via the lecturer, much of it is delivered via the junior teaching staff (written comments on assignments or verbally in class) or quizzes and online activities that the junior teaching staff may assist in building. As such, it is vital that we nurture a vigorous enthusiasm for clear, useful, and timely feedback in all our teaching staff. The concepts of feed-up, feedback and feed-forward were discussed, as well as logistical considerations, such as calibration of marks, and tools such as rubrics.

Blended synchronous learning

After the initial shift to purely online teaching, a new teaching mode was adopted by the University: dual-delivery mode. Dual-delivery is used here to describe any teaching mode that allows both on-campus and off-campus students to attend a given teaching session. Possible ways of dual-delivery include a split-cohort approach, with separated sessions for online and on-campus students, or mixed-cohort approach, where all students join the same session synchronously. In this paper, we refer to the latter as "blended synchronous learning". Our teaching staff were familiar with on-campus activities and had some experience with online-only sessions due to the initial shift to online teaching, which enabled them to have classes in

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a split-cohort mode. Blended synchronous learning, however, was an entirely new approach and so an introduction to this mode was recommended.

In this session, junior teaching staff were introduced to some of the expected challenges, both technical and cognitive, associated with blended synchronous learning. Strategies to manage and engage both online and on-campus cohorts in blended synchronous teaching sessions were also covered. On the technical side, they were encouraged to consider sharing content and adopting online tools that could be used by both cohorts for equity reasons. They were also introduced to types of activities and distribution of activities between students that might encourage cross-cohort interactions and help foster an equitable learning experience for both cohorts as well as promote student-student interaction.

Evaluation

To evaluate the usefulness of our pilot professional development program, the following exit survey was conducted using Qualtrics:

1. What is your department?
2. Overall, how would you rate this training session? *(Likert scale from 0: Not at all useful, to 10: Extremely useful)*
3. What would you like more help on? *(multiple options selectable)*
    - Zoom
    - Physical setup for online teaching
    - Quizzes and tools for active learning
    - Providing feedback to students
    - Blended synchronous learning
4. What was one thing you learned? *(free text response)*
5. What could be improved? *(free text response)*
6. Any other feedback? *(free text response)*

All responses were collected anonymously. The first question was included as an internal gauge for departmental engagement with the program. The remaining questions aimed to collect feedback to help us improve future runs of the program.

Outcomes & Discussion

215 people registered and attended our professional development program. 86 answered the exit survey. The results of the survey indicated that in general, participants found the program useful, with Question 2 registering an average rating of 8.27 (out of 10) with a standard deviation of 1.40 (n=86).

Figure 1 displays a pie chart visualising the areas that participants indicated that they would like more assistance (Question 3). The top three areas were quizzes and tools for active learning (31%), providing feedback to students (22%), and blended synchronous learning (20%). As expected, Zoom (12%) and the physical setup for online teaching (15%) did not rank highly, in line with our observation that a large percentage of participants had some prior experience with online teaching in Semester 1, 2020. We anticipate that blended synchronous learning will emerge as a major focus area in future runs of our program, in line with the University's recent transition to a strategy of actively promoting teaching in blended synchronous mode (as opposed to a split-cohort approach) where possible.

Figure 2 display word clouds visualising the free text responses to Questions 4, 5, and 6 of the survey, respectively. Taken together, the data displayed in Figures 1 and 2 (Question 4) suggest that while our participants were generally familiar with the infrastructure associated with online teaching (Zoom, physical setup for online teaching), most were not aware of the specific tools and platforms available to promote active learning and student interactions in online settings ("Tools", "Padlet", and "Kahoot" feature prominently in Figure 2, Question 4). While this program might have introduced them to some specific examples of active learning

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tools, the data for Question 3 (Figure 1) suggests that this area should be further expanded and emphasised in future runs of our program.

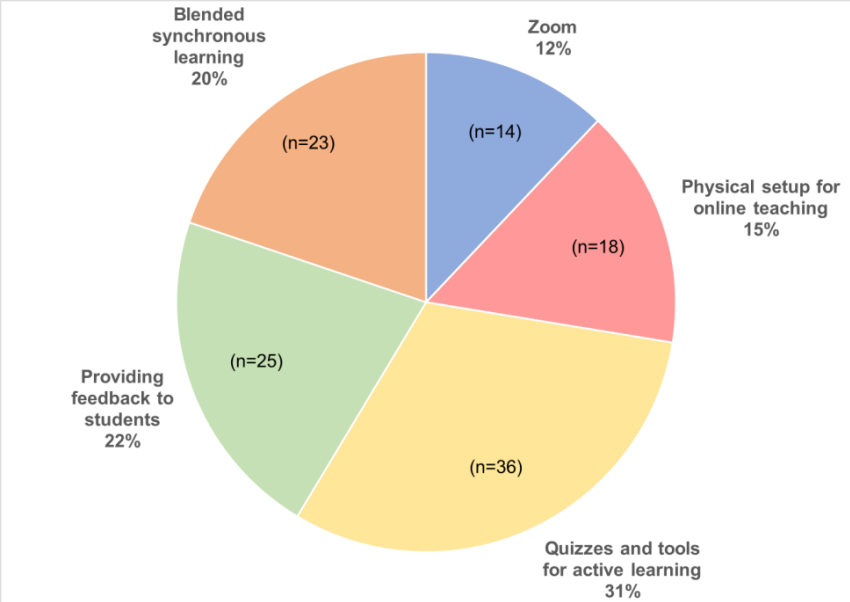

Figure 1: Areas in which participants indicated that they would like more assistance.

The word cloud in Figure 2 (Question 5) suggests that participants require more time to properly engage in discussions within their breakout rooms. More opportunities for discussion can not only result in more effective exchange of ideas but can also contribute to forming stronger connections and networks within this community of practice. One way of addressing this might be to extend the duration of our program from two to three hours in future runs – this might have the added benefit of providing participants with more time to digest the wide range of information being covered. Finally, the word cloud in Figure 2 (Question 6) aligns well with the quantitative data recorded for Question 2 in the survey: most participants found the program helpful in providing information relevant to navigating teaching in online environments.

Reflecting on the long-term trajectory of our program, we envision this program evolving from one characterised by unidirectional information flow from our team of more senior teaching-focused academics to junior teaching staff, to one where information flow is bidirectional. In the context of the framework for social learning systems, the previously described hallmarks of communities of practice – “competence” and “experience” – might effectively be flipped. Here, more senior academics will also have important lessons to learn from junior teaching staff. After all, the bulk of teacher-student interactions involve junior teaching staff members in tutorial/workshop settings, and they are therefore more well-poised to understand and relay the specific problems and challenges that students face. It is in tackling these problems and challenges that practical opportunities to experiment with new teaching-related tools and platforms organically arise. This ideal version of our program – one characterised by active discussions, debate, fluid exchange of ideas, and continuous improvement – aligns well with the key elements of communities of practice: engagement, mutuality, and repertoire (Wenger, 2000).

This study has 2 main limitations. First, it was conducted only in the Faculty of Engineering and Information Technology. Replication considering other faculties could contribute to a better understanding of the different contextual influences on the delivery of online teaching and learning and use of digital tools. Second, student results and performance were not examined

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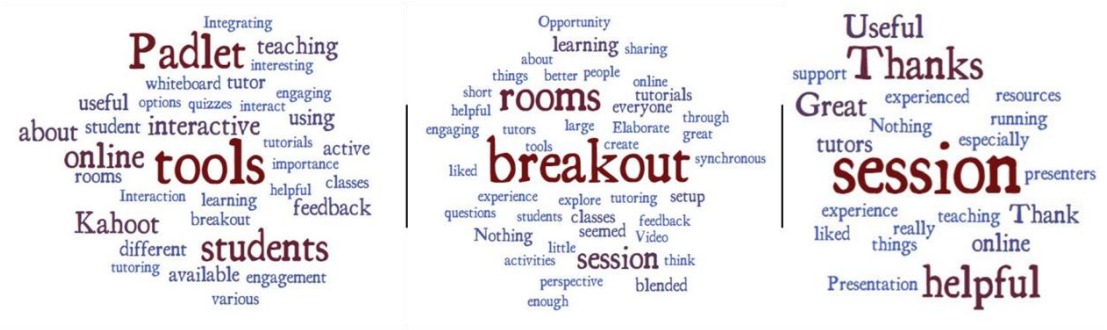
in this study so we could not measure how students benefited from our program. This analysis was beyond the scope of this training, but future studies might focus on further examining the impact of professional development programs on student performance.



Question 4 **Question 5** **Question 6**

Figure 2. Word clouds corresponding to Questions 4, 5 and 6.

Conclusion

The ongoing coronavirus pandemic has resulted in the accumulation of a wealth of experiential knowledge on how best to navigate online teaching. However, due to circumstances associated with the pandemic, as well as the lack of a strong underlying sense of community revolving around effective teaching practice, this knowledge has not been properly transmitted to junior teaching staff. To address this issue, and to initiate the building of a more robust community of practice, we developed and piloted an online teaching-focused professional development program. This pilot run of our program was well-received, with feedback collected for implementation in future runs. Moving forward with this program, we envision it shifting from one involving unidirectional information transfer to one characterised by a more fluid exchange of ideas and best practices in online teaching.

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