

Case Study

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MICROSOFT TEAMS BREAKOUT ROOMS
FOR ONLINE DELIVERY

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INTRODUCTION

The COVID-19 pandemic presented many challenges and barriers for the education of engineering students worldwide. At Otago Polytechnic, Aotearoa New Zealand, lecturers from around the institute were forced to adapt their teaching practice significantly in order to provide quality online learning to their taura (learners). At the time of the outbreak of the pandemic, Microsoft Teams was relatively new to Otago Polytechnic kaimahi (staff), who had little to no knowledge of the functionality of the software, or of best practise for online teaching. Employing Gibbs's Reflective Cycle, this article describes the situation, reflects on learner feedback and explores the implications for future practise in education.

GIBBS'S REFLECTIVE CYCLE

Professor Graham Gibbs published his reflective cycle in his 1988 book *Learning by Doing*. The purpose of the model is to provide a structure for exploring and learning from experiences. The model is cyclic in nature, which lends itself well to the continuous improvement of experiences that are repeated. The model covers six stages:

- *Description* of the experience
- *Feelings* about the experience
- *Evaluation* of the experience, both positive and negative
- *Analysis* of the situation
- *Conclusion* about the learnings and what could be done differently
- *Action Plan* for dealing with similar situations in the future.

Gibbs explains that the first stage in the process is mainly descriptive and encourages the user to "simply describe" and not to "make judgements yet, or try to draw conclusions" (Gibbs, 1988). The second stage of the cycle asks the user to describe their reactions and feelings, taking care not to analyse their feelings at this point. The third stage, Evaluation, gives the opportunity to describe what was good or bad about the experience. The next stage of the cycle, Analysis, prompts the user to make sense of the situation and what was really going on, encouraging them to bring in ideas from outside the experience as well. Gibbs advises the user to compare different people's experiences to see if they were different or similar in important ways. The fifth stage of the cycle is to examine what can be concluded from the experiences, both generically and specifically. Lastly, the Action Plan stage encourages the user to consider what they would do differently in a similar situation, on the basis of what they have learned from the experience.

DESCRIPTION

This article tells the story of part of Otago Polytechnic's COVID-19 response in the College of Engineering, Construction & Living Science team. Our Year 3 Bachelor of Engineering Technologies learners specialise in either a civil, electrical or mechanical discipline. A number of Year 3 courses are common to learners from each of the three disciplines, such as Professional Engineering Practice, Project Management, Risk Management and an Engineering Development Project.

These courses rely heavily on group activities, which involve discussions of a number of engineering case studies with other learners from their disciplines, but also in a cross-disciplinary environment. This allows learners to share experiences from their own engineering contexts, and for learners from other disciplines to not only learn from them, but to provide feedback on those experiences from another perspective.

In March 2020, approximately three weeks into the beginning of the MG7121 Professional Engineering Practice course, the New Zealand government announced the first Level 4 lockdown of the COVID-19 pandemic. Otago Polytechnic responded by issuing notice to its staff and learners that learning would move to online delivery via Microsoft Teams. Staff and learners were unfamiliar with the use of Microsoft Teams as a communication or collaboration tool. Typically, engineering programmes at Otago Polytechnic are delivered on campus in a face-to-face setting.

It was decided that the use of a breakout room facility within Microsoft Teams could be employed within the MG7121 Professional Engineering Practice course. This would enable the lecturer to facilitate group activities and discussions in separate online 'breakout rooms,' eventually returning learners to the 'main' session to discuss each of the groups' findings from their group activities.

The next stage of Gibbs's reflective cycle is to describe the reactions and feelings which relate to the experience.

FEELINGS

Naturally, the announcement of the first COVID-19 cases in Aotearoa New Zealand created a lot of anxiety. Many of our staff and learners felt that moving to an online learning setting was the correct thing to do in order to minimise the risk of catching or spreading the COVID-19 virus. However, it was widely accepted that online learning would be challenging for everybody for two main reasons. Firstly, engineering lecturers had no previous experience of facilitating online learning or, in fact, what best practice would involve. Secondly, our engineering learners had never experienced learning in an online setting, although most of our learners at that level had a high level of digital competency and familiarity with computer technology.

Some staff were quite concerned that the quality of learning would suffer as a result of the shift to online learning. The majority of staff focussed on the challenge ahead and embraced the opportunity to learn new skills, utilising online resources and Otago Polytechnic's own Learning & Teaching Development service department to understand techniques that could be applied to achieve engaging and effective online learning sessions.

The next stage of the process is to evaluate what was 'good' or 'bad' about the experience, taking care not to analyse why at this stage.

EVALUATION

It was decided that the best way to evaluate the effectiveness of the MS Teams breakout rooms for online delivery was to create a survey for the learners of MG7121 Professional Engineering Practice to complete. The lecturer liaised with Otago Polytechnic's Organisational Research department to create a simple yet effective

questionnaire which was issued to the learner cohort at the end of semester. The questionnaire gave each learner the chance to reflect on the effectiveness of breakout rooms for online learning; how the experience could be improved; how well they stayed on track during the group activities; how well the lecturer supported them during group activities; and how well the presentation of the findings of the group activities worked. Each of these points had a rating, ranging from “not well (effective) at all,” “slightly well,” “moderately well,” “very well” to “extremely well.” After responding to each point with a rating, the learners were encouraged to add a comment to describe what did or didn’t work well, in order to provide helpful feedback.

The questions in the survey were focused on the use of the MS Teams platform and the effectiveness of the breakout room facility for hosting group activities. There was no intention in the survey design to assess the effectiveness of the actual activities. The activities had previously been utilised in a face-to-face environment and were found to be effective group exercises to promote learning of the subject matter. The main aim of the survey was to determine if breakout rooms were an effective tool for the delivery of group activities in an online environment.

The results of the survey are tabulated in Figures 1–3:

How would you rate the use of MS Teams breakout rooms for group activities?

Answer	Response	%
Not effective at all	0	0%
Slightly effective	3	18%
Somewhat effective	4	24%
Moderately effective	9	53%
Extremely effective	1	6%
Total	17	100%

Figure 1. Using MS Teams breakout rooms for group activities.

The learners suggested that the main reason for the breakout rooms being effective was that it was easier to have conversations in smaller groups than it was in one larger group. Learners felt more comfortable engaging in discussions and noted that there were fewer distractions in a breakout room than in a classroom setting. Some reasons for lower ratings of effectiveness included: not being sure how to use the facility, not being clear on what breakout room to join and some learners not having access to hardware, such as microphones or cameras, in order to contribute effectively. It was also suggested that the learners in each group prepare a document, such as a mind map or flow chart, for the final presentation, rather than rely on one or two group members to talk about their findings.

How well did your group manage to stay on track with the activity during the breakout session?

Answer	Response	%
Not well at all	0	0%
Slightly well	2	12%
Moderately well	9	53%
Very well	5	29%
Extremely well	1	6%
Total	17	100%

Figure 2. Staying on task during the breakout session.

Feedback from learners indicated that they felt supported by the lecturer during the activity. The lecturer spent time in each of the group breakout rooms to ensure that they were on track with the objectives of the activity and provided feedback to each group on their ideas and how they could develop them. The learners also commented that they found it helpful to have the activity posted in MS Teams prior to the session, so that they could read and understand what the activity entailed.

How well did the presentation of the group findings of the breakout room activities work?

Answer	Response	%
Not well at all	0	0%
Slightly well	4	24%
Moderately well	8	47%
Very well	5	29%
Extremely well	0	0%
Total	17	100%

Figure 3. Presenting group findings in breakout rooms.

Learners commented that responsibility for the presentation of the findings normally fell to the most vocal member of the group. Groups that used visual aids found it much easier to present the information. It was also mentioned that some group members were either too shy to present or didn't have the technical hardware to do this.

After careful evaluation of the results of the learner survey, the next step of the cycle was to analyse the situation.

ANALYSIS

Through careful analysis of the learner feedback and survey responses, it was found that the learner cohort generally found the use of MS Teams breakout rooms to be effective. Learners noted that they felt more comfortable and likely to engage in conversation when in a smaller group than in the main session. Learners who were digitally competent and had access to hardware such as a personal computer, webcam or microphone were much more likely to engage and even lead group activities. Learners who were using a device such as a smartphone to connect, or who had limited hardware or poor broadband connections, found it difficult to engage fully in activities.

Feedback suggested that there was some confusion over the allocation of breakout rooms to learners. It is worth noting that at the time of delivery, MS Teams had limited breakout room functionality and the facilitator had to manually create session with MS Teams Channels, pointing each learner to a specific room to 'dial' into. Improvements to MS Teams have since been implemented which will mean that this will no longer be an issue, as the facilitator will transfer the learners to the correct breakout room at the 'press of a button.'

Some groups reported that they didn't always stay on task with the group activities. Factors which contributed to this included the confusion surrounding breakout room learner allocation and learners' failure to complete the pre-reading of the activity brief or support documentation prior to the session. It was significant that the facilitator spent time with each group to 'check in' and ensure that they all understood the task requirements and were using the time allocated productively.

Learners were less satisfied with the effectiveness of the presentation of the groups' findings from the breakout room activities. This was largely due to the feeling that the responsibility of presenting fell with the "most vocal member" of the group. Some techniques which could improve this in future practice could be to have a roster for presenting the information, or perhaps for the facilitator to have predetermined questions that could be issued to each individual group member. This would promote fairness and inclusion within the activity and hopefully resolve the issue of resentment, arising from the perception that some learners engage in the presentation and others within the same group do not.

Following analysis of the situation, the next step is to draw conclusions from the learnings about the experience and determine what might be done differently.

CONCLUSION

Online collaborative learning (OCL) is an approach that is "very different from the more objectivist approaches found in computer-assisted learning, teaching machines and artificial intelligence applications to education" (Bates, 2014). Bates states that these methods largely seek to replace some of the activities which would normally be carried out by human teachers. With online collaborative learning, the aim is to enhance the communication between the teacher and learners via the use of technology. Communication is managed in a way that supports learning by assisting with the construction of knowledge, taking into consideration the learner's prior subject knowledge.

Overall, the use of MS Teams breakout rooms for online delivery was found to be an effective way of engaging learners in group discussions and activities. The results of the learner survey indicated a good level of satisfaction among learners with the effectiveness of the breakout room activities. The survey had a high level of completion by the MG7121 Professional Engineering Practice cohort, with around 90 percent of the learners opting to complete it. The design of the survey was carefully considered to ensure that it was easy for the learners to complete and explored the key reasoning behind each of their responses. The comments provided by the

learners provided valuable insights into what worked well about the breakout room activities and how they could be improved for future practice, either in the event of further COVID-19 lockdowns or as an option for blended delivery.

Preparation is key to the success of using MS Teams breakout rooms for online delivery. It is recommended that learners are well prepared ahead of the session through lecturers providing a brief of the activity and some pre-reading of a scenario, case study or document that supports the activity. This will ensure that learners are utilising the time in the breakout room session optimally. It also provides the opportunity for non-native English language learners to read, translate and understand the text prior to the session.

The final step of Gibbs's reflective cycle is to develop an action plan setting out how similar situations might be approached in future practise.

ACTION PLAN

Learner feedback suggests that one of the main areas for improvement with the MS Teams breakout rooms activities was the need for better visual aids. It was suggested that the group be required to create a document to assist with the presentation of the information or data produced during the activity. The tools offered to learners during the activities were limited to Microsoft Whiteboard. The limitation of this software was its lack of a text input feature at the time of the activity delivery, a deficit which has since been rectified by Microsoft.

When designing activities for breakout room sessions, it should be considered how information is required to be presented by each group to the other groups. The use of mind maps, flow charts, diagrams, work breakdown structures, Gantt charts, spreadsheets and other aids should all be considered, depending on the type of activity planned. It is also important to consider the needs of all learners when planning the design. For example, neurodiverse learners or learners with mental health issues may find it difficult to present the team's findings from the group activity. One technique that might be considered is to provide specific roles within the team, a solution which would avoid creating undue stress on these learners while providing them with the opportunity to equally contribute to the activity.

The choice of digital tools and apps available within MS Teams is vast, and the inclusion of online collaboration tools will only help to prepare learners for an evolving workplace which, post COVID-19, is relying more heavily on such tools to enable workers to communicate effectively in a digital workspace.

We should also investigate techniques for 'digital scaffolding' of online collaboration tools such as MS Teams and associated apps. It is easy to assume that learners born after 1980, commonly known as "digital natives," are skilled in using technology in the educational institution and workplace. However, research published in 2017 claims that there are no significant skills differences between people born after 1980 and older generations or "digital immigrants" (Kirschner & De Bruyckere, 2017). It is an unfair expectation to place on our younger generations that they automatically have a high level of digital competence with digital tools and workplace technologies. As contemporary educators, it is our responsibility to help grow our learners' competence with the digital tools and technologies that will give them the digital skills that are highly desirable in the twenty-first-century workplace.

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