

**Project Title:** Cultivating student led tutorials - The effects of a flipped online classroom.

**Report Authors:** Melanie Gregg and Vivien Cleary

**Report Submission Date:** 31st December 2022

**Key Staff:** Melanie Gregg and Vivien Cleary

**Contact Point:** [melanie.gregg@open.ac.uk](mailto:melanie.gregg@open.ac.uk) and [vivien.cleary@open.ac.uk](mailto:vivien.cleary@open.ac.uk)

**HREC Reference number** HREC/4114/Gregg/Cleary: Approved eSTeEM project 26/08/2021

**Keywords:** peer led learning, active learning, interactive, student engagement.

## Executive Summary

The objective of this small-scale study was to create a tutor free, active learning environment where students feel at ease to discuss and work on skill-based problems together.

Activities were designed to practise skills acquired on the course and investigate the benefits of applying this in a peer group, where students were able to bounce ideas off each other. A short tutor led plenary session followed the activity to discuss student ideas and solutions. An online survey was piloted and distributed to students after each tutorial to determine engagement and learning. One-to-one structured interviews were carried out with a small sample of students at the end of the project. A final questionnaire was sent to all students in the tutor groups to establish motivations for attending tutorials.

The majority of students reported that the peer led tasks boosted their confidence and engagement and the tutor free space was deemed as less intimidating for student interaction. The pre tutorial activities were recounted as fun and laid a foundation for positive social interaction in the skill orientated tasks. This allowed the development of a good rapport with both tutor and fellow students. 86% of students surveyed felt specific breakout room tasks enhanced their learning and developed essential skills which increased their performance in the assignments.

Moving forward from this study it is strongly suggested that introducing this style of tutoring early in a student's academic career would be beneficial. There were indications that confidence and success came with familiarity of the online tools and breakout room tasks. It is recommended that building community within the tutor group, using humour and well-designed breakout room activities will allow the development of this interactive progressive space. The nurturing of confident independent learners needs to be a universal strategy that will continue its effects long after the student leaves the educational establishment.

## Aims and Scope of the project

From as early as the 3<sup>rd</sup> century, philosophers were recognising the potential of active learning. A paraphrased version of an ancient Chinese proverb states “Tell me and I forget, teach me and I remember, involve me and I learn.” (Quote Investigator, 2019)

From these ancient roots interactive peer learning has been researched as a channel for developing confident, independent learners (Kennan, 2014) and the integration of these approaches early in student life reported to have the largest impact (O’Flaherty and Phillips, 2015). Covid-19 caused educators to embrace a new normal, with many institutions in higher education switching to online learning. Ahead of the game, as a well-established distance learning environment, the Open University (OU) has the infrastructure and experience to seamlessly move from blended provision to entirely online. It is pertinent to consider now as a crucial time to perfect the education strategies currently in place to build strong independent learners.

Within the OU, tutorials are built on the premise that students need a space to discuss and clarify module content. At the tutor group level, 15 - 20 students form a group for the year and the tutorials present as an intimate and relaxed opportunity to strengthen relationships and put learning into practice. However often tutorials regress into didactic lectures with little student input (Butler et al, 2018).

Learning is not a spectator sport and the whole concept of inverted classrooms has gained momentum over the last few decades (O’Flaherty and Phillips, 2015). In this model educators created a skills-based student-centred platform that has indicated improved student satisfaction and performance.

The concept of active learning within a peer group is backed by many studies (Stigmar, 2016), but it is the quality and relevance of the learning tasks that drive the outcome (Ramsden, 2003). Therefore, our attention focused on creating a comfortable tutor free place within a tutor group tutorial that would allow student interaction to solve a pre-determined problem; to introduce an element of fun and create a relaxed space to encourage greater student engagement (Reeve et al, 2020). We proposed to turn the tables so that parts of the tutorial become student led in a flipped classroom model. Students should come to the tutorial having read the material and engaged in the tasks ready to apply their skills in the breakout room.

It has the potential to

- create a closer sense of belonging as only small groups would be working together within the same tutor group.
- enhance the learning experience of students and improve retention.
- promote interest and hone skills rather than just obtain information
- nurture more independent, confident learners.

It is not in place of tutor led learning but as complementary activity where students are able to discuss activities and questions in a controlled environment designed by tutors, to facilitate collaboration and avoid the growing problem of social media collusion.

This study proposed to modify the design of some SDK100 science tutorials during 2021 and 2022 using student led breakout room activities. This would enable students to work their way through a skill orientated task relating to the upcoming TMA. A short plenary session with the tutor at the end would be used to collect ideas or questions from the discussion. These sessions would be recorded so that absent students do not miss out on the learning experience.

The overall aim of the project was to facilitate student centred learning and increase student participation in online tutorials to enhance learning.

This project builds on the findings of a previous esteem project led by senior lecturer Diane Butler. The project revealed tutors' frustration that tutorials were mainly didactic lectures with restricted student interaction while students were perceived to be very happy with the provision and frequently chose the recording over the live tutorial. However, the study indicated that even students who preferred lecture style tutorials, valued the benefit of good interactive tutorials. Our focus therefore, was to design tutorial activities that engage and challenge students in an enjoyable session aimed at developing relevant skills.

#### [Specific goals of the project](#)

Design and test breakout room activities to promote peer to peer learning. These student-centred tasks would aim to develop skills and contain an element of fun.

Nurture a friendly online community where students are confident and comfortable to attempt questions and tasks in a non-threatening environment. In so doing establish any potential barriers to active learning with their peers.

## Activities

The breakout room tasks were designed to be interactive and practice the skills required in the five SDK100 assessments TMA01 to TMA05. An online survey was piloted and distributed to students after each tutorial to explore engagement and learning. A one-to-one structured interview was carried out in MS Teams with a sample of students at the end of the module. A final survey was sent to all students after the final tutorial to establish motivations for attending tutorials.

## Designing the tutorials

The rationale behind the project was to develop student led activities that covered a range of skills required for SDK100. These break out room tasks were used in 4 different SDK100 tutor groups and covered skills tested in the course assignments.

- photo recognition (pilot task in welcome tutorial)
- using a digital microscope to count leukocytes.
- designing an experiment,
- designing a table,
- planning an essay,
- writing a hypothesis and
- calculations

In addition, a fun element was incorporated early into the tutorials to encourage a relaxed atmosphere. These included silly jokes, dingbats, positive quotes, true/false challenges.

## The survey

A survey was designed and piloted with the researchers using JSIC online surveys. Students from four student groups (tutored by the two researchers) were then invited to participate in the breakout room tasks and complete an online survey after each tutorial. A total of 20 agreed to participate in the research and signed consent forms. The attendance and response rates can be seen in table 1. Reminders to complete the survey were sent a maximum of three times. Data was gathered and analysed from each of the surveys.

The survey included a range of closed questions ranked on the Likert scale and open questions. These open questions were used to gather more information from the students (Appendices 1 and 2). The survey questions were changed as the study progressed to gain more understanding of student perception (Appendices 3 and 4). A final tutorial (tutorial 6) also included a breakout room task and was analysed during the final interviews.

## One to one interviews

A sample of eight students were invited for 30-minute interviews in Microsoft Teams, four from each group. The researchers designed a structured questionnaire and interviewed each other's students (Appendix 5). The interviews took place over Microsoft Teams and were transcribed by the researchers using Tutor 1 and Tutor 2, together with Student A, B, C and D so they were anonymised.

### [Final survey](#)

A final survey was sent to students in the four tutor groups, to capture views from all of the students and not just those involved in the breakout room research (Appendix 6). A total of 22 out of 54 students completed this survey (response rate 41%).

### [Changes to the original project plan](#)

The original aim was to deliver 6 interactive breakout room tutorials and 7 were delivered. The first breakout room was the pilot (meet your tutor). One tutorial included 2 separate breakout rooms. Despite altering the questions on survey 4, by the fifth survey students were not providing new information so it was agreed to stop the surveys at this point. Feedback was gathered on all 7 interactive tutorials during the interviews. An additional Microsoft Forms questionnaire went to all students in the four tutor groups to investigate reasons for non-attendance at tutorials.

## Findings and Discussion

### Quantitative findings from the online surveys (Appendix 1 – 4)

#### Attendance

20 students from four SDK100 tutor groups in 21J presentation agreed to participate in the online surveys: 5 males to 17 females however the original tutor group ratios were 1:7, 1:3, 1:2, and 1:1 male to female. Attendance and response rates to the survey for each tutorial are recorded in the table below.

Tutorial	Breakout room Activity	Number of students in 4 tutorials		% Response rate
		Attendance	Responses	
1	Microscope task	18	15	83
2	Table design Experimental design	10	8	80
3	Essay Plan	10	7	70
4	Hypothesis writing	9	3	33
5	Calculation	10	8	90

Table 1 Response Rate for online surveys

As a small-scale research project the percentages quoted only indicate possible trends.

The online post tutorial survey questions are detailed in appendices 1 to 4.

#### Technical aspects, devices used and communication methods

##### **Question: What device did you use?**

	Tutorial 1 (n=15)	Tutorial 2 (n=8)	Tutorial 3 (n=7)	Tutorial 4 (n=3)	Tutorial 5 (n=9)
	% using device				
Laptop	66.7	75	57.1	66.7	77.4
Desk computer	20	12.5	28.6	0	11.1
IPAD	6.7	0	14.3	0	0
Phone	0	0	0	0	0
Other*	6.7	12.5	0	33.3	11.1

Table 2: The range of devices used in tutorials 1 – 5.

##### **Question: Did you have any technical difficulties?**

	Tutorial 1 (n=15)	Tutorial 2 (n=8)	Tutorial 3 (n=7)	Tutorial 4 (n=3)	Tutorial 5 (n=9)
	% reporting problems				
Yes	20	37.5	28.6	0	44.4
No	80	62.5	71.4	100	55.6
Problems reported	Microphone Visual on IPAD	Microphone Audio	Microphone Wifi		Audio

Table 3: Technical difficulties reported by students in tutorials 1 – 5.

**Question: How did you communicate?**

	Tutorial 1 (n=15)	Tutorial 2 (n=8)	Tutorial 3 (n=7)	Tutorial 4 (n=3)
	% using the communication tools			
Microphone	40	62.5	28.6	33.3
Chat box	93.3	87.5	57.1	100
Webcam	0	0	0	0
Whiteboard	6.7	12.5	0	33.3
Other	0	0	0	0
I did not communicate	0	0	14.3	0

Table 4: Communication tools used in tutorial 1 - 4.

- The majority of students attending tutorial used a laptop or desktop computer.
- Most students had no technical difficulties and of those reporting problems, sound was the most frequent issue.
- The chat box was the most used communication tool although the microphone was also a popular choice albeit to a lesser extent. It is noteworthy that many students used more than one communication tool.

Confidence and enjoyment

**Question: Before the tutorial, how confident did you feel about being in a breakout room with no tutor?**

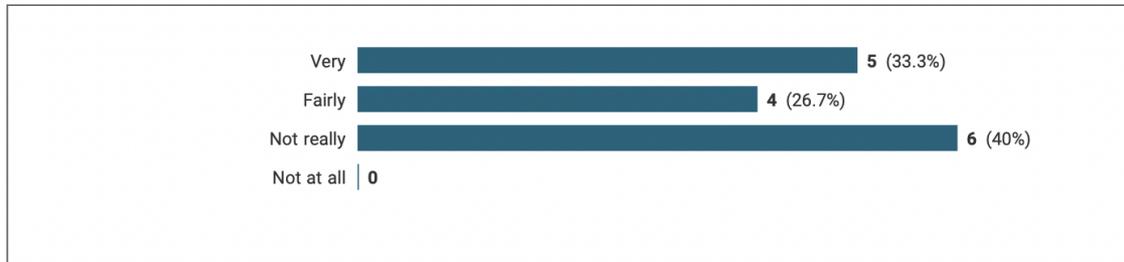


Figure 1: How confident students felt about break out rooms before the tutorial (tutorial 1).

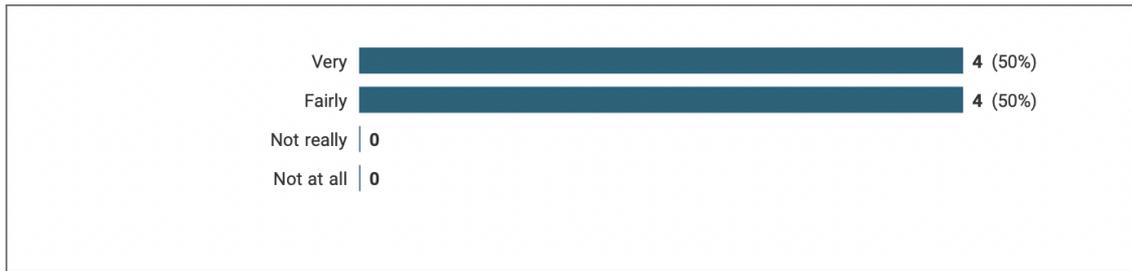


Figure 2: How confident students felt about break out rooms before the tutorial (tutorial 2).

- 40% noted they were not confident in the first use of breakout rooms (Figure 1).
- By tutorial 2 the whole group reported feeling confident in use of the breakout room (Figure 2).

**Question: Did the experience increase your confidence with using breakout room activities?**

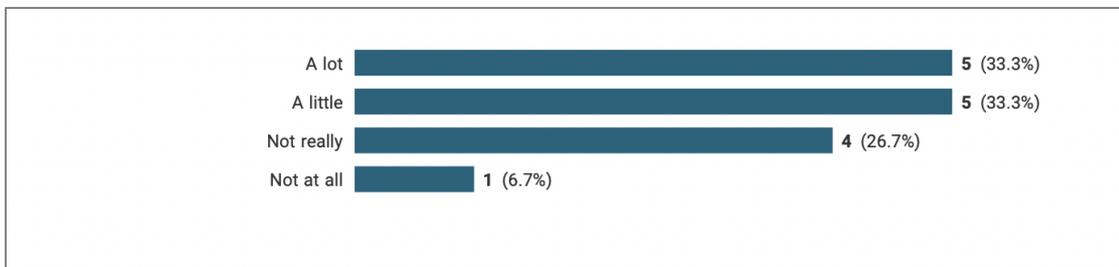


Figure 3: Students' ratings on confidence using break out rooms (tutorial 1).

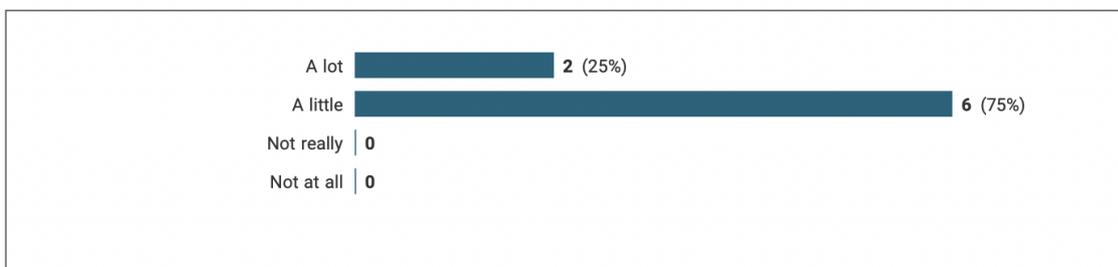
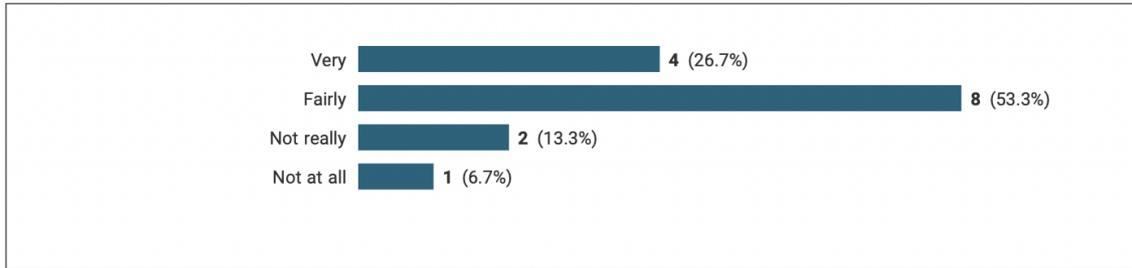


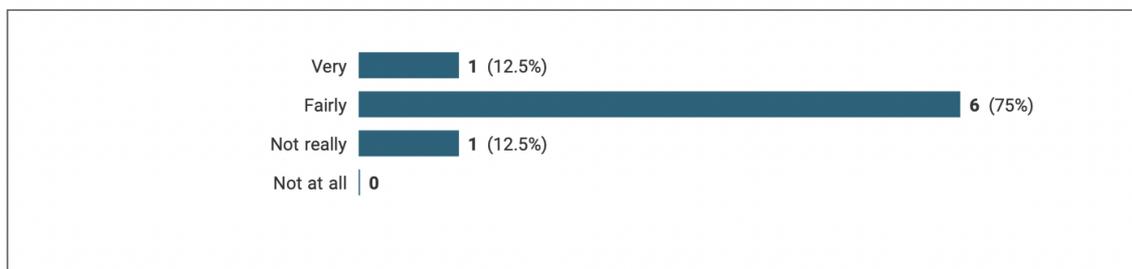
Figure 4: Students' ratings on confidence using break out rooms (tutorial 2).

- Tutorial 1  
33% of students felt their confidence increased a lot and 33% a little. 26.7% felt their confidence had not increased and 6.7% recorded no increase in confidence (Figure 3).
- Tutorial 2  
100% felt their confidence had increased using breakout rooms (Figure 4).

**Question: Focusing specifically on the breakout room activity, how enjoyable did you find it?**



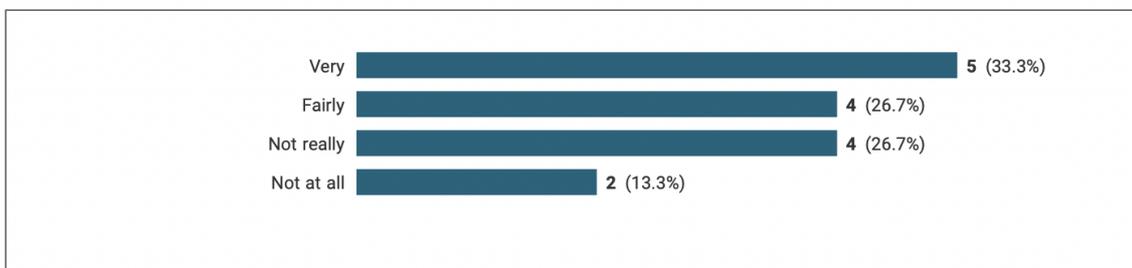
*Figure 5: How enjoyable was the breakout room activity? (tutorial 1).*



*Figure 6: How enjoyable was the breakout room activity? (tutorial 2).*

- 26.7% reported tutorial 1 breakout room task as very enjoyable while a further 53.3% reported it as fairly enjoyable (figure 5).
- 12.5% reported tutorial 2 breakout room task as very enjoyable while a further 75% reported it as fairly enjoyable (figure 6).
- The numbers not enjoying it decreased from 20% to 12.5% from tutorial 1 to tutorial 2 (figures 5 and 6).

**Question: With regards to your learning, how helpful did you find the breakout room activity?**



*Figure 7: How did the breakout room help your learning? (tutorial 1).*

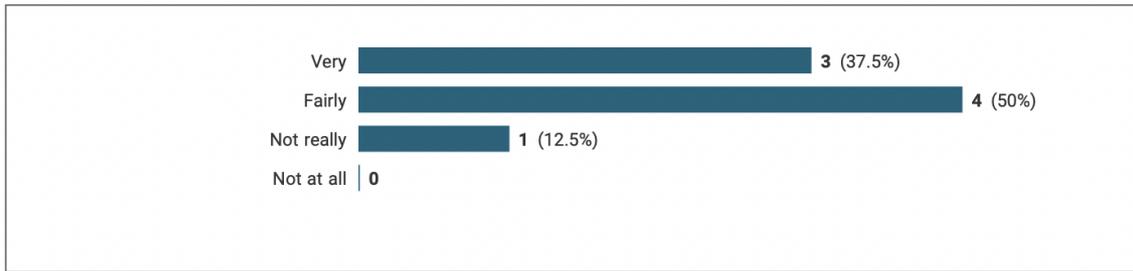


Figure 8: How did the breakout room help your learning? (tutorial 2).

- 60% found it fairly or very helpful in Tutorial 1 (Figure 7).
- 87.5% found it fairly or very helpful in Tutorial 2 (Figure 8).

### Skills

#### Question: Have the breakout room activities increased your skills?

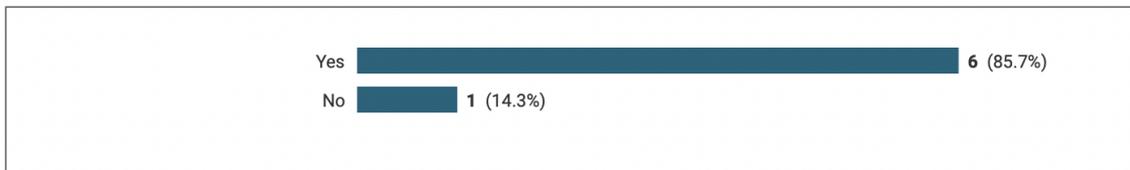


Figure 9: Did the breakout room activities increase skill?

#### Question: If yes please explain which skills you have learnt.

Student	Comment
1	<ul style="list-style-type: none"> <li>• Communication</li> </ul>
2	<ul style="list-style-type: none"> <li>• Having to concisely explain my knowledge on a particular element of a topic has helped improve my communication skills I think</li> </ul>
3	<ul style="list-style-type: none"> <li>• Working together helps me understand the topics more clearly</li> </ul>
4	<ul style="list-style-type: none"> <li>• Essay planning</li> </ul>
5	<ul style="list-style-type: none"> <li>• Helped with TMA 03</li> </ul>

Table 5: If yes, what skills have you learnt?

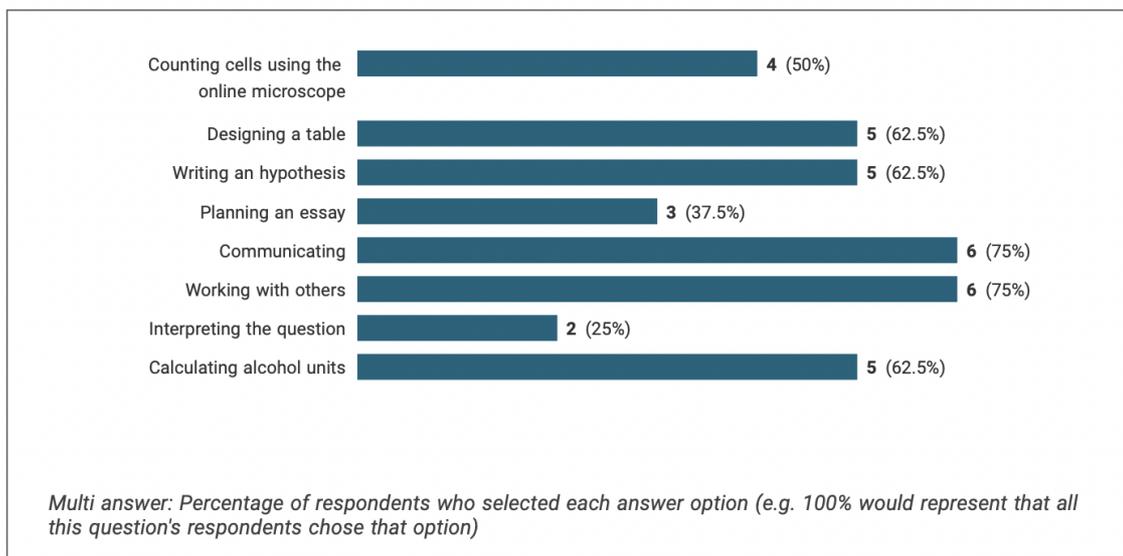
**Question: If no please explain why the activities did not increase your skills**

Student	Comment
	<ul style="list-style-type: none"> <li>We didn't have enough time to read through what was required, think about it and then discuss it. I was distracted more by the others, would prefer to be given the task alone, then reveal and compare after – then discuss as a group perhaps.</li> </ul>

*Table 6: If no, explain why the activities did not increase skills.*

- By tutorial 3, the majority of students indicated that breakout rooms had enhanced their skills (Table 5).
- One student concluded that time to prepare the task before group work would be beneficial (Table 6).

**Question: What skills have you learnt so far in the breakout room activities (multiple answers allowed)**



*Figure 10: What skills have you learnt so far? (tutorial 5).*

- Tutorial 5 students indicated many of the skills assessed in the TMA were enhanced by the breakout room experience (Figure 10).

## Style of tutorial

### Question: Which style do you prefer?

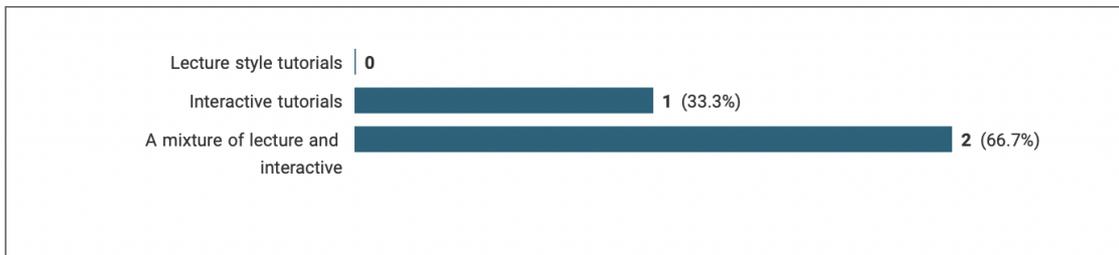


Figure 11: What style of tutorial do you prefer? (tutorial 3).

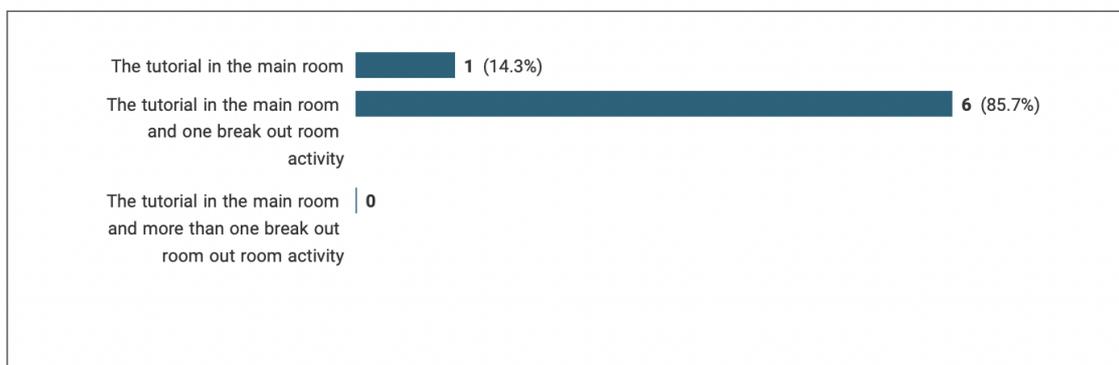


Figure 12: Tutorial style - Break out room preferences (tutorial 4).

- All students surveyed wanted interactivity built into the tutorial.
- 85.7% of the students in tutorial preferred a mix of main room activities and 1 breakout room task (Figure 12).

## The post tutorial student survey overview

The survey established that most students were able to engage in tutorial interactivity using desk or lap top computers (table 2) and there were relatively few technical issues arising (table 3) with microphones, audio and internet connection. We investigated their opinions in the following categories.

- **Confidence**  
The survey indicated that confidence with the breakout rooms varied amongst the students (Figure 1) but that overall confidence increased with use (Figure 2, 3, 4).
- **Helpful**  
Most students rated the activities as helpful (Figure 7, 8) and 86% claimed it had enhanced the range of skills needed for the TMAs (Figure 9, 10).
- **Tutorial style**  
When asked about their preferred style of tutorial everyone selected either completely interactive or a mix of interactivity and lecture (Figure 11). Tutorial 2 introduced two breakout room activities and the feedback indicated that students preferred only 1 breakout room session in the tutorial (Figure 12).
- **Enjoyment**  
There were different levels of perceived enjoyment by the students in using the breakout activities but the number of students enjoying the breakout room experience increased with use (Figure 5, 6).

Despite the limitation of sample size these post tutorial surveys gave valuable insight into student perception of the peer led activities.

## Qualitative Results from student one-to-one interviews (Appendix 5, 8)

Encouraging engaged and active learners to boost learning and achievement has been extensively researched over the years (Chipase et al, 2017) but student engagement still remains an educator’s biggest challenge. So it was interesting that with the students interviewed, there was more active participation, leading to increased confidence and perception of improved skill performance.

The qualitative results were coded and broken down into key themes from the online surveys, interviews and final survey.

For each code there is a small sample of supporting quotes below. The range of relevant quotes extracted for each section is contained in Appendix 8.

The code categories are as follows:

### Peer to Peer learning

Student	1	2	3	4	5	6	7	8	Total
Number of positive references to peer-to-peer learning	6	2	4	2	3	3	3	3	26

*Table 8: A tally of the number of positive references to peer-to-peer learning in the interviews*

Interview quotes illustrating emerging themes:

#### *Enriched Communication*

*“It was good to bounce off other people.”*

*“I actually just really enjoyed the interaction.”*

#### *Enhanced Learning*

*“One person was absolutely brilliant at chemistry and, you know, I think what really surprises me is how quickly completely strangers can actually work together instructively to arrive at answers. I think the breakouts for me were a revelation.”*

*“We would either go back in and tell our tutor we haven’t got a clue what we’re doing or we’ve smashed it. 9 times out of 10, we had smashed it. So yeah having time away from our tutor was good for our learning.”*

### *Beneficial Rapport (empathetic understanding)*

*“If we got it wrong, you know we would help each other out.”*

*“I think that gave more space in order to say something that might be wrong or worrying about looking foolish, because you are with other students.”*

### **Was peer to peer learning established?**

All interviewed students were positive about their breakout room experience, and many mentioned the benefit of interacting with other students. There was a definite undertone that out of tutor sight meant there was less pressure to get things right, and in fact the students enjoyed both being directed by their peers or helping others on the learning path. Although the security of having the tutor in the plenary alleviated some of the potential tension regarding accuracy.

This non-threatening space allowed or even enticed students to work on a problem together in a safe environment, learning from mistakes and enjoying the experience. This is in keeping with the concept that tutor free space in a breakout room can make tutorials more interactive and collaborative amongst the students (Chandler, 2016).

### Skills and learning

Student	1	2	3	4	5	6	7	8	Total
Number of positive responses on skills and learning	3	4	3	3	3	3	4	4	26

*Table 9: A tally of the number of positive references to skills and learning*

Interview quotes illustrating emerging themes:

### *Increased Knowledge and Understanding*

*“An opportunity to drill down aspects of the reading I didn't fully understand.”*

*“My marks were really good in my TMAs from understanding more in the tutorials.”*

### *Increased Skill Confidence*

*“Probably the calculations in tutorial 6 on trauma and alcohol. I would always have said I can't do Maths, where this tutorial actually forced me to kind of get to grips with maths and I would have to say that I have a different viewpoint about maths after doing this tutorial (task).”*

*“It's (the activities) a very useful tool and I've been doing another module alongside it. I have used the essay planning skill and feel I am ahead of the curve by using it.”*

### **Were students aware of enhanced skills and learning?**

All students commented positively on improving their skills and had increased confidence using these skills in assignments. Affirmation that answering strategies were appropriate was deemed important and in fact learning through mistakes was frequently mentioned. One of the most encouraging quotes was from a student that had low confidence in their maths skills. They claimed the tutorial activity had ‘forced them to get to grips’ with maths and now had a different viewpoint about maths. This implies a change in position and suggests a more positive, confident approach to problems. Skill development was applied to other disciplines as one student felt ‘ahead of the curve’ by using essay planning skills in another module practised in tutorial 3. This supports the research carried out by King (1995) where didactic methods of teaching are overshadowed by the student led approach to problem solving where the tutor is simply the facilitator.

### Confidence and Success

Student	1	2	3	4	5	6	7	8	Total
Number of indications of increased confidence and success	7	3	4	1	2	2	4	2	25

*Table 10: A tally of the number of indications of increased confidence*

Interview quotes illustrating emerging themes:

#### *Group confidence*

*“With the tutor you might be worrying about looking foolish but because you're just among other students it's okay.”*

*“Your sessions obviously worked because I came in not confident and I left really confident and that I could give my answers and not worry. You fixed it.”*

#### *Individual confidence*

*“I came into the course not very confident in being able to do stuff. And by the end I was getting 96% in my TMA.”*

*“I attend tutorials because the activities which covered stuff like counting the leukocytes, specificity, experimental conditions and things and was incredibly useful because it made you feel much more confident.”*

### ***Were students aware of increased confidence and success?***

All interviewed students spoke of improved confidence whether that was working in the tutor group or working individually with problems and assignments. Some students stated that they could not have completed the course without the tutorials. Shyness and lack of confidence in their own ability is a common problem in adult learners, often stemming from unhelpful past experiences. The relevance of the activities was also mentioned as ‘incredibly useful’ as it provided a strong foundation for the TMA skills that were tested. One student felt their own confidence increase after listening to another student explain about balancing chemical equations. This is peer to peer learning at its best.

### Fun and enjoyment

Student	1	2	3	4	5	6	7	8	Total
Number of indications of perceived fun and enjoyment throughout tutorial	2	1	5	0	1	2	2	1	14

*Table 11: A tally of the number of indications of perceived fun and enjoyment throughout the tutorial.*

Interview quotes illustrating emerging themes:

#### *Welcome activity fun*

*“Yeah, I think my teacher had a bit in the beginning with, like little jokes. And then they would ask what your favourite joke was. I think repeating that sort of thing at the midpoint might add a little bit of humour.”*

#### *General Tutorial enjoyment*

*“Everything to me was good. Like the visuals, the fun and using cartoons, using funny scenarios. It works well, I learn well from that.”*

*“Really, really enjoyed it, really enjoyed it and loved it all, really!”*

*“She did little exercises where you had to make statements against each other and draw lines and stuff and that was great.”*

*“The time went so quickly and covered so much. They’re brilliant.”*

### ***Did the students have fun or enjoy their experiences?***

The welcome activities were favourably received and in fact they were even recommended for a mid-tutorial break. While these welcome activities were successful in relaxing the students and making them feel more at ease, most of the enjoyment they commented on was with the interactivity and accomplishing the breakout room activities. Their perceived success generated enjoyment. This has a layered effect in that 'fun' welcome activity makes the students feel more comfortable allowing more engagement in the breakout rooms which results in the perceived success. This echoes the research by O’Kada and Sheehy (2020) which showed the importance of having fun in distance learning. The obvious repercussions would be improved retention and enhanced student success.

### Barriers and problems

Student	1	2	3	4	5	6	7	8	Total
Number of comments regarding barriers or problems	1	1	0	1	4	2	3	1	13

*Table 12: A tally of the number of comments regarding barriers or problems.*

Interview quotes illustrating emerging themes:

#### *Personal discomfort*

*“At first it’s funny because you go into a breakout room and it’s very quiet. It’s like, who’s gonna say something? Who’s gonna speak first.”*

*“It’s like coming into a room, only it’s a virtual room. There’s a physical element to it, so I visualise it as people walking into a room. They’ve got a load of books. You’re looking for a seat, you know, if it’s not a regular classroom that you’re in, you’re looking for a seat. You’re shuffling around. You’re saying hello to different people. You’re nodding. There’s an actual virtual element to that as well.”*

#### *Technical discomfort*

*“In the breakout room at first there were a lot of messages going on from the tutor and it was distracting.”*

#### *Internet/connectivity problems*

*“The only thing was like a recurring issue in a couple of tutorials, like the audio was sort of broken up.”*

### **Were there barriers or problems with the breakout room activities?**

There were few reported barriers to learning. There were some reported sound issues which may link into the students own internet availability. The latter of which was the students' responsibility and out of the control of the AL taking the tutorial. OU specific technical issues included unfamiliarity with the VLE platform and distracting use of the tools available in Adobe Connect. Overuse of the broadcast tool from the tutor in the main room to the students in the breakout room was reported as distracting. Some students reported they were initially socially uncomfortable with the virtual room but that as they became familiar with the room and their fellow students this discomfort dissipated.

### Improvements and Positive aspects

Student	1	2	3	4	5	6	7	8	Total
Number of comments regarding improvements and positive aspects	1	1	2	2	4	3	2	3	18

Table 13: A tally of the number of comments regarding improvements and positive aspects.

Interview quotes illustrating emerging themes:

#### *Tutor praise*

*"My tutor has been a massive help and attending tutorial a massive help, helping me with tactics or skills."*

#### *Tutorial praise*

*"I would definitely advise attending tutorials because I believe that they are key to helping."*

#### *Breakout room praise*

*"Really successful. I never came out of one thinking what. Was the point in that? They were really helpful."*

*"In the breakout room, not only was it to do the task but also to have a bit of a chat with the other student as well. We'd sneak in a bit of a discussion on something else like our previous TMA result or something in the midst of the task."*

#### *Improvements*

*"(The breakout task) It was more successful when there was kind of a time limit given."*

*“It’s really difficult to come into a room and go ‘Yeah. Right. Let’s get on with this.’ You know when you haven’t even spoken to any of them or interacted with any of them in any way. We should probably use 15 minutes to say hello to everyone and then the breakout room might work.”*

*“Yeah, I think my teacher had a bit in the beginning with, like little jokes. And then they would ask what your favourite joke was. I think repeating that sort of thing at the midpoint might add a little bit of humour.”*

*“We had to gallop through quite complex ideas. I’ve not done any learning for a long time and I guess it would have been better if some of the tutorials were at a gentler pace. It might give the breakout rooms a bit more time.”*

### **What positive aspects were mentioned by students and suggested improvements?**

When asked how they might improve the tutorials, all students claimed that there was nothing more they could add. They looked forward to the whole tutorial interaction with both tutor and peers. The feedback on the importance of attending tutorial was overwhelming from all interviewed students. The tutorials and breakout room activities were perceived as being ‘a massive help’, ‘a reflection on my grades’. ‘key to helping’, always enabling you to ‘learn something’, and if you are running out of time, the advice was tutorials are ‘above everything else’.

However, there were some areas marked by the students for improvement. The social aspect of the virtual classroom was perceived as intimidating and that time to build rapport was essential for successful execution of the breakout room activities. Light relief from the intense study in the middle of the tutorial in an activity similar to the welcome activity was also suggested. A time limit for the breakout activity was used in some tutorials and affirmed as a successful strategy. Even the suggestion of a gentler pace to allow assimilation of the tutorial content revealed students’ concentration possibly waned over the duration of the 1-hour long tutorial.

### **Microsoft Forms Survey Results Overview (Appendix 7)**

A final survey was issued to all students in the four tutor groups. 86% of those surveyed rated SDK100 as very enjoyable. The majority of students were familiar with OU teaching and assessment strategies.

Of those who completed the survey 77% attended at least 3 tutorials over the presentation of the course. Reasons for not attending were mainly to do with time and 95% of those not attending used the recordings.

When asked what would improve their SDK100 experience attending tutorial, building relationships with their tutor group and participating in more activities were the most frequent selections. Students surveyed preferred an interactive style of tutorial.

The SDK100 module team have been informed of the findings throughout the project.

## Conclusion

This study sought to create an optimal learning environment by engaging students through peer centred active learning.

1. Once students got past the initial awkwardness of being in a room of relative strangers, they enjoyed the challenge of completing a task together without the tutor watching over them. They deemed it as important for their learning progression.
2. The favoured style of learning was a mix of interactive activities, tutor directed sections and a single breakout room session.
3. The design of the tutorial tasks was key for student confidence and successful acquisition of skills
4. Relationship with the tutor emerged as important in making the student feel confident and committed to the tutorials. It takes time to build relationships so the focus on building rapport needs introduced early in the module.
5. Fun and enjoyment was marked as a good foundation for tutorial success.

## Impacts

- Students need time to get to know each other in the virtual room and this needs to be integrated into early tutorials. This is in addition to meeting your tutor where the students learn to use the variety of tools available. So, more time should be invested in early tutorials to build a student community.
- Students feel more comfortable making mistakes in a tutor free space, they like to learn from each other and help each other out. This generates a sense of belonging and collegiality. So well designed activities in small breakout rooms are highly beneficial to maximise learning potential.
- Students benefit from elements of fun in pre tutorial welcome activities and woven into the tutorial framework.
- Tutorials should not be packed with content and there should be more focus on student led activities to allow students to process information and develop skills and in essence, learn from each other.
- There are advantages of creating this comfortable space, conducive to learning where students' interest is developed, and the process of nurturing independent, confident students begins. This process will ultimately increase student attainment, improve retention and allow the development of very employable graduates.

- There are applications of the skills-based tasks across other disciplines.

Further research includes:

- A larger scale study involving more tutorial groups and interviews with both students and associate lecturers.
- An analysis of participating students' EMA marks with those not engaging in the peer led activities.

Developing a friendly online tutorial where students are confident and comfortable to answer questions and solve problems in a non-threatening environment, could lay the foundation for improved attainment in future academic arenas. In this project the strategy increased student engagement and confidence and has potential for improving performance.

## Figures and Tables

- Table 1: Response Rate for online surveys.
- Table 2: The range of devices used in tutorials 1 - 5.
- Table 3: Technical difficulties reported by students in tutorials 1 – 5.
- Table 4: Communication tools used in tutorial 1 – 4.
- Table 5: If yes, what skills have you learnt.
- Table 6: If no, explain why the activities did not increase skills.
- Table 7: Preferred break out rooms one-to-one interviews.
- Table 8: A tally of the number of positive references to peer-to-peer learning in the interviews.
- Table 9: A tally of the number of positive references to skills and learning.
- Table 10: A tally of the number of indications of increased confidence.
- Table 11: A tally of the number of indications of perceived fun and enjoyment in the tutorial.
- Table 12: A tally of the number of comments regarding barriers or problems.
- Table 13: A tally of the number of comments regarding improvements and positive aspects.
- 
- Figure 1: How confident students felt about break out rooms before the tutorial.
- Figure 2: How confident students felt about break out rooms before the tutorial.
- Figure 3: Student’s ratings on confidence using break out rooms post tutorial 1.
- Figure 4: Student’s ratings on confidence using break out rooms post tutorial 2.
- Figure 5: How enjoyable were the breakout rooms?
- Figure 6: How enjoyable were the breakout rooms?
- Figure 7: How did the breakout room help your learning?
- Figure 8: How did the breakout room help your learning?
- Figure 9: Did the breakout room activities increase skills?
- Figure 10: What skills have you learnt so far?
- Figure 11: What style of tutorial do you prefer?
- Figure 12: Break out room preferences/
- Figure 13: Experience of SDK100/
- Figure 14: Studied with the OU before?
- Figure 15: How many tutorials attended?
- Figure 16: Why did students not attend?
- Figure 17: Type of device used by students?
- Figure 18: What would make your learning experience better?
- Figure 19: Did you make use of the recordings?
- Figure 20: Which style of tutorial do you prefer?

## References

Butler, D., Cooke, L., Haley-Mimar, V., Halliwell, C., MacBryne, L., (2018). Achieving Student centred facilitation in online Synchronous Tutorials. In *Towards Personalised Guidance and Support for Learning*, pp. 76-82. <http://oro.open.ac.uk/59271/> (Accessed 29/11/2022).

Chandler, K., (2016). Using Breakout Rooms in Synchronous Online Tutorials. *Journal of Perspectives in Applied Academic Practice*, 4(3) pp. 16–23.

Chipchase, L., Davidson, M., Blackstock, F., Bye, R., Clothier, P., Klupp, N., Nickson, W., Turner, D., Williams, M., (2017). Conceptualising and Measuring Student Disengagement in Higher Education: A Synthesis of the Literature. *International Journal of Higher Education*, Vol. 6, No. 2 pp. 31-42. <https://www.sciedu.ca/journal/index.php/ijhe/article/view/11010> (Accessed 15/12/2022).

Keenan, C., (2014). Mapping student-led peer learning in the UK. The Higher Education Academy. <https://www.advance-he.ac.uk/knowledge-hub/mapping-student-led-peer-learning-uk> (Accessed 29/11/22).

King, A., (1993). From Sage on the Stage to Guide on the Side. *College Teaching*, Vol. 41, No. 1 (Winter, 1993), pp. 30-35. Published by: [Taylor & Francis, Ltd.](#) <http://www.jstor.org/stable/27558571> (Accessed: 29/11/2022).

O’Flaherty, J. and Phillips, C., (2015). The use of flipped classrooms in higher education. A scoping review. *The Internet and Higher Education*. <https://doi:10.1016/j.iheduc.2015.02.002> (Accessed 29/11/22).

Okada, A. and Sheehy, K., (2020). The value of fun in online learning: a study supported by responsible research and innovation and open data. *Revista e-Curriculum*, 18(2) pp. 319–343.

Quote Investigator, (2019). <https://quoteinvestigator.com/2019/02/27/tell/> (Accessed 29/11/22).

Ramsden, P., (2003). *Learning to teach in higher education*. London: Routledge Falmer (2nd edition).

Reeve, J., Cheon, S. H., & Jang, H., (2020). How and why students make academic progress: Reconceptualizing the student engagement construct to increase its explanatory power. *Contemporary Educational Psychology*, 62(July), 101899. <https://doi.org/10.1016/j.cedpsych.2020.101899> (Accessed 29/11/22).

Stigmar, M., (2016). Peer-to-peer Teaching in Higher Education: A Critical Literature Review, *Mentoring & Tutoring: Partnership in Learning*, 24:2, 124-136, 1178963. <http://dx.doi.org/10.1080/13611267.2016.1178963> (Accessed 1/12/2022).

# Appendix 1

## Online Survey 1 and 2

This survey is to gather your thoughts from the most recent tutorial. This should take about 5 minutes to complete and is completely anonymous.

### **Participation**

Completing the survey is entirely voluntary, and your participation or non-participation will not impact upon your studies in any way. Please make sure you complete the survey in one sitting, to ensure that all your responses are recorded.

### **Consent**

The data you provide will be collated, analysed, and form the basis of a report which will inform and improve future online learning.

### **Data Protection**

The data you provide will be collated, analysed and anonymised. Any personal identifiable data will not be shared. Any quotes will be anonymised before being used in any written reports, presentations and published papers relating to this study.

If you have additional requirement that makes it difficult for you to complete the survey online, please email: melanie.gregg@open.ac.uk or vivien.cleary@open.ac.uk.

If you have any questions relating to the survey, please do not hesitate to contact us on the above email.

The survey has been designed for use on a standard computer (desktop or laptop). Full accessibility on a handheld device (such as a smartphone or tablet computer) cannot be guaranteed.

Your contribution is very much appreciated. Please click on the 'Next' button below to continue, and where available use the 'Previous' button in the survey to navigate backwards.

What date was the tutorial? \_\_\_\_\_ Which topic did it cover? \_\_\_\_\_

### **Questions:**

1. Which device did you use? (Please tick)

Lap top                  Desk top                  Mobile Phone                  iPad                  Other (free text)

If you ticked other what device did you use?

2. Did you have any technical issues?

Yes/No

If yes, please explain the technical issues

3. During the breakout activity how did you communicate with other students? (Tick all that apply)

Microphone    Chat Box                  Webcam                  Whiteboard                  Other    I did not communicate

If you did not communicate, please can you explain why?

4. Before the tutorial, how confident did you feel about being in a breakout room with no tutor?

Very

Fairly

Not really

Not at all

5. Focusing specifically on the breakout room activity, how enjoyable did you find it?

Very                  Fairly                  Not Really                  Not at all

6. With regards to your learning, how helpful did you find the breakout room activity?

Very                  Fairly                  Not Really                  Not at all

7. Please tell us about any aspects that seemed to work particularly well during the breakout room activity.

8. Please tell us about any aspects that did not seem to go very well during 'the breakout room activity.

9. Please use this box for any suggestions or comments about the breakout room activity.

10. Did the experience increase your confidence with using breakout room activities?

Very                  Fairly                  Not Really                  Not at all

***Thank you very much for completing this survey.***

## Appendix 2

### Online Survey 3

This survey is to gather your thoughts from the most recent tutorial. This should take about 5 minutes to complete and is completely anonymous.

#### **Participation**

Completing the survey is entirely voluntary, and your participation or non-participation will not impact upon your studies in any way. Please make sure you complete the survey in one sitting, to ensure that all your responses are recorded.

#### **Consent**

The data you provide will be collated, analysed, and form the basis of a report which will inform and improve future online learning.

#### **Data Protection**

The data you provide will be collated, analysed and anonymised. Any personal identifiable data will not be shared. Any quotes will be anonymised before being used in any written reports, presentations and published papers relating to this study.

If you have additional requirement that makes it difficult for you to complete the survey online, please email: melanie.gregg@open.ac.uk or vivien.cleary@open.ac.uk.

If you have any questions relating to the survey, please do not hesitate to contact us on the above email.

The survey has been designed for use on a standard computer (desktop or laptop). Full accessibility on a handheld device (such as a smartphone or tablet computer) cannot be guaranteed.

Your contribution is very much appreciated. Please click on the 'Next' button below to continue, and where available use the 'Previous' button in the survey to navigate backwards.

What date was the tutorial? \_\_\_\_\_ Which topic did it cover? \_\_\_\_\_

#### **Questions:**

1. Which device did you use? (Please tick)

Lap top          Desk top          Mobile Phone          iPad          Other (free text)

If you ticked other what device did you use?

2. Did you have any technical issues?

Yes/No

If yes, please explain the technical issues

3. During the breakout activity how did you communicate with other students? (Tick all that apply)

Microphone    Chat Box          Webcam          Whiteboard    Other    I did not communicate

If you did not communicate, please can you explain why?

4. How many break out activities have you completed in SDK10021J?

One    Two    Three          More than three

5. Have the break out activities increased your skills?    Yes/No

If yes, please explain what skills you have learnt?  
If no, please explain why the activities did not increase your skills?

6. Are there any skills you would like to see included in future tutorials?
7. Please tell us if the break out room activities have increased your science knowledge and if so how?
8. To date which break out room activity has been your favourite and why?
9. Please tell us about any aspects that seemed to work particularly well during the breakout room activity.
10. Which do you prefer?

The tutorial in the main room

The tutorial in the main room and one break out room activity

The tutorial in the main room and more than one break out room activity.

***Thank you very much for completing this survey.***

## Appendix 3

## Online Survey 4

This survey is to gather your thoughts from the most recent tutorial. This should take about 5 minutes to complete and is completely anonymous.

### **Participation**

Completing the survey is entirely voluntary, and your participation or non-participation will not impact upon your studies in any way. Please make sure you complete the survey in one sitting, to ensure that all your responses are recorded.

### **Consent**

The data you provide will be collated, analysed, and form the basis of a report which will inform and improve future online learning.

### **Data Protection**

The data you provide will be collated, analysed and anonymised. Any personal identifiable data will not be shared. Any quotes will be anonymised before being used in any written reports, presentations and published papers relating to this study.

If you have additional requirement that makes it difficult for you to complete the survey online, please email: melanie.gregg@open.ac.uk or vivien.cleary@open.ac.uk.

If you have any questions relating to the survey, please do not hesitate to contact us on the above email.

The survey has been designed for use on a standard computer (desktop or laptop). Full accessibility on a handheld device (such as a smartphone or tablet computer) cannot be guaranteed.

Your contribution is very much appreciated. Please click on the 'Next' button below to continue, and where available use the 'Previous' button in the survey to navigate backwards.

What date was the tutorial? \_\_\_\_\_ Which topic did it cover? \_\_\_\_\_

### **Questions:**

1. Which device did you use? (Please tick)

Lap top                  Desk top                  Mobile Phone                  iPad                  Other (free text)

If you ticked other what device did you use?

2. Did you have any technical issues?

Yes/No

If yes, please explain the technical issues

3. During the breakout activity how did you communicate with other students? (Tick all that apply)

Microphone    Chat Box                  Webcam                  Whiteboard    Other    I did not communicate

If you did not communicate, please can you explain why?

4. What skills have you learnt so far in the break out activities (you can tick more than one)

Counting cells using the online microscope

Designing a table

Writing an hypothesis

Planning an essay

Communicating  
Working with others  
Interpreting the question

5. Thinking about the last two tutorials, are there any skills you would like to practise?  
(you can tick more than one)

Designing an experiment  
Interpreting results  
Writing a case study  
Maths  
Referencing

6. Thinking about the last tutorials which break out room activities have increased your science knowledge and if so how?

7. To date which break out room activity has been your favourite and why?

8. Which do you prefer?

Lecture style tutorials  
Interactive tutorials  
A mixture of lecture and interactive.

***Thank you very much for completing this survey.***

## Appendix 4

## Online Survey 5

This survey is to gather your thoughts from the most recent tutorial. This should take about 5 minutes to complete and is completely anonymous.

### **Participation**

Completing the survey is entirely voluntary, and your participation or non-participation will not impact upon your studies in any way. Please make sure you complete the survey in one sitting, to ensure that all your responses are recorded.

### **Consent**

The data you provide will be collated, analysed, and form the basis of a report which will inform and improve future online learning.

### **Data Protection**

The data you provide will be collated, analysed and anonymised. Any personal identifiable data will not be shared. Any quotes will be anonymised before being used in any written reports, presentations and published papers relating to this study.

If you have additional requirement that makes it difficult for you to complete the survey online, please email: melanie.gregg@open.ac.uk or vivien.cleary@open.ac.uk.

If you have any questions relating to the survey, please do not hesitate to contact us on the above email.

The survey has been designed for use on a standard computer (desktop or laptop). Full accessibility on a handheld device (such as a smartphone or tablet computer) cannot be guaranteed.

Your contribution is very much appreciated. Please click on the 'Next' button below to continue, and where available use the 'Previous' button in the survey to navigate backwards.

What date was the tutorial? \_\_\_\_\_ Which topic did it cover? \_\_\_\_\_

### **Questions:**

1. Which device did you use? (Please tick)

Lap top                  Desk top                  Mobile Phone                  iPad                  Other (free text)

If you ticked other what device did you use?

2. Did you have any technical issues?

Yes/No

If yes, please explain the technical issues

3. During the breakout activity how did you communicate with other students? (Tick all that apply)

Microphone    Chat Box                  Webcam                  Whiteboard                  Other    I did not communicate

If you did not communicate, please can you explain why?

4. What skills have you learnt so far in the break out activities (you can tick more than one)

Counting cells using the online microscope

Designing a table  
Writing an hypothesis  
Planning an essay  
Communicating  
Working with others  
Interpreting the question  
Calculating alcohol units

5. To date which break out room activity has been your favourite and why?
6. For the final tutorial, is there anything you would like us to include?

***Thank you very much for completing this survey.***

## Appendix 5

## One to one Interviews

Framework for interviews that should take about 20 minutes per person  
(Recorded in teams and transcribed).

Introduction: thank the student for coming, introduce yourself, explain it is confidential and recording.

1. How have you enjoyed SDK100?
2. What in particular has helped you with your learning in the course?  
(Prompt: Module materials; Forums; Cluster tutorials; Tutor Group tutorials; break out rooms)
3. How easy is it to use the distance learning technology (prompts: internet connection, audio, microphone, device use and on line drawing tools)
4. You have a reminder sheet in front of you of the student led activities/break out rooms -- which 3 of these were the most helpful and why?
5. How successful or unsuccessful were the student led break out rooms in your sessions?
6. Was there anything in particular that didn't work? (Prompt: pace/too fast too slow)
7. How convenient were the allocated tutorial times?  
(Prompt what would be your preferred times)
8. How confident did you feel in speaking or leading in the break out rooms?  
(prompts: were you happy to talk/not talk/ comfortable listening or using the chat/ did you get enough out of it/would something help you speak more (such as videos)/are you happier working without the tutor) (How well did you get to know your group)?
9. If you were the tutor, what is the one thing you would do to make it more engaging for all students in the tutorial?
10. After a year of SDK100 what advice would you give to new students to get the most out of the course?

## Appendix 6

## Final online survey to all students

Please let me know how you have got on this year. Use the form to indicate the highs and lows and what has helped or hindered your progress.

1. Rate your experience with SDK100 this year (star rating).

2. Have you studied with the OU before? Yes/No

3. How many tutor group tutorials did you attend?

1-2 tutor group tutorials

3-4 tutor group tutorials

5-6 tutor group tutorials

no tutor group tutorial

4. If you did not attend live tutorials, tick any of the following that apply

I did not have the time

I was too nervous

The times did not suit me, so I used the recordings

The times did not suit me

I am always behind in the reading and I feel lost

Other

5. If you ticked 'other' please explain

6. What type of device did you use?

Computer desktop    Computer laptop    phone    tablet

7. Did you experience any technical difficulties? Please explain the problems you encountered.

8. How did you try and solve these problems?

9. What would make your learning experience in SDK100 better? Tick all that apply.

Getting to know my tutor group better

Having a functioning microphone

Having better internet

Participating in more activities

Using the video in tutorial

Attending tutorials

10. If you did attend any tutor group tutorial what did you enjoy most?

11. For tutorials you did not attend did you make use of the recordings?  
Yes/No

12. If you used a recording explain how helpful it was?

13. Which do you prefer?

Lecture style tutorials (with no student participation)

Interactive tutorials with student participation

A mixture of lecture and interactive styles

14. How happy were you with your tutor's guidance and encouragement?

15. What advice would you give a new student just starting SDK100?

## Appendix 7

## MS Forms Survey Quantitative Findings

This survey was sent to all students (those that attended tutorial and those that did not) after the final EMA asking a series of questions (appendix 6). The results are from the 22 students who responded.

### 1. Rate your experience with SDK100 this year.

21  
Responses



Figure 13: Experience rating for SDK100

- 21 students gave the overall rating for SDK100 as 5.67 out of 6 stars (Figure 13)

### 2. Have you studied with the OU before?

Yes	14
No	8

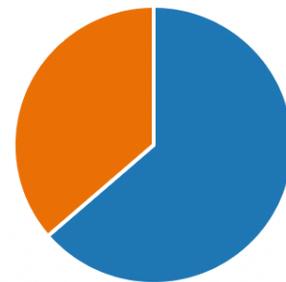


Figure 14: Have you studied with the OU before?

- 36% of students were new to OU (Figure 14)

### 3. How many tutor groups tutorials did you attend?

1-2 tutor group tutorials	4
3-4 tutor group tutorials	7
5-6 tutor group tutorials	10
no tutor group tutorial	0
Other	1

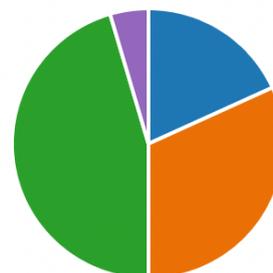


Figure 15: How many tutorials were attended?

- 77% of students attended at least 3 tutorials through the year (Figure 15)

**4. If you did not attend live tutorials, tick any of the following that apply.**

<span style="color: blue;">●</span> I did not have the time	3
<span style="color: orange;">●</span> I was too nervous	2
<span style="color: green;">●</span> The times did not suit me, so I u...	10
<span style="color: red;">●</span> The times did not suit me	2
<span style="color: purple;">●</span> I am always behind in the readin...	1
<span style="color: brown;">●</span> Other	3

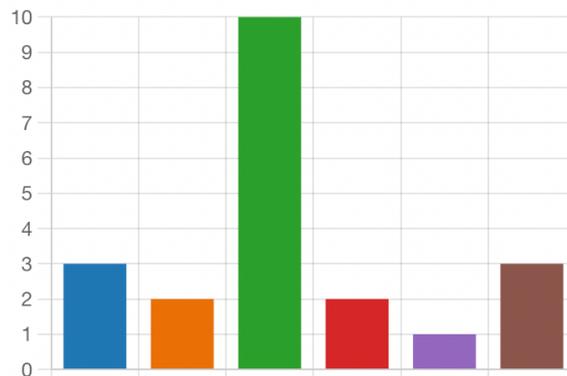


Figure 16: Why did students not attend?

- 18% had time management issues that held them back from attending.
- 9% did not have enough confidence to attend.
- 55% reported unsuitable times of which 45% used the recordings. (Figure 16)

**5. What type of device did you use?**

<span style="color: blue;">●</span> computer desktop	6
<span style="color: orange;">●</span> computer laptop	14
<span style="color: green;">●</span> phone	5
<span style="color: red;">●</span> tablet	5

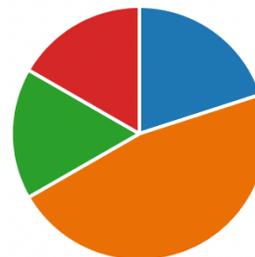


Figure 17: Type of device used by students

- 90% used a desk or lap top computer. (Figure 17)

**6. What would make your learning experience in SDK100 better? Tick all that apply.**

<span style="color: blue;">●</span> Getting to know my tutor group...	10
<span style="color: orange;">●</span> Having a functioning microphone	0
<span style="color: green;">●</span> Having better internet	1
<span style="color: red;">●</span> Participating more in the activities	8
<span style="color: purple;">●</span> using the video in tutorial	4
<span style="color: brown;">●</span> attending tutorials	13

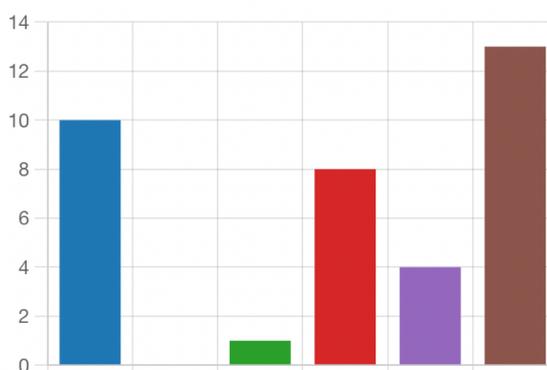


Figure 18: What would make your learning experience better?

- 59% felt attending tutorials would enhance their learning experience.
- 45% felt that it would be a better experience if they knew their tutor group better.
- 36% felt participating more in the activities would enhance their learning.
- 18% felt that using the video in Adobe Connect would enhance their learning experience. (Figure 18)

### 11. For tutorials you did not attend did you make use of the recordings?



Figure 19: Did you make use of the recordings?

95% of students made use of the recordings. (Figure 19)

### 13. Which do you prefer?



Figure 20: Which style of tutorial do you prefer?

81% of students preferred interactive tutorials rather than lecture style. (Figure 20)

## Appendix 8

## Coded Qualitative Results from one-to-one interviews

### Peer to Peer learning

Student	1	2	3	4	5	6	7	8	Total
Number of positive references to peer-to-peer learning	6	2	4	2	3	3	3	3	26

*Table 7: A tally of the number of positive references to peer-to-peer learning in the interviews*

Interview quotes illustrating emerging themes:

#### *Enriched Communication*

*"It was good to bounce off other people."*

*"I actually just really enjoyed the interaction."*

*"It was a good thing to engage with each other."*

*"Just talking to one other student was good."*

#### *Enhanced Learning*

*"One person was absolutely brilliant at chemistry and, you know, I think what really surprises me is how quickly completely strangers can actually work together instructively to arrive at answers. I think the breakouts for me were a revelation."*

*"The time away from our tutor was good for our learning."*

*"I feel like they they've helped massively."*

*"The breakout rooms helped by practising the technique and then comparing. You can sort of measure yourself with another person's interpretation."*

#### *Beneficial Rapport (empathetic understanding)*

*"If we got it wrong, you know we would help each other out."*

*"I think that gave more space in order to say something that might be wrong or worrying about looking foolish, because you are with other students."*

*"We had a really lovely group of people. It was okay to be without the tutor for a short time."*

## Skills and learning

Student	1	2	3	4	5	6	7	8	Total
Number of positive responses on skills and learning	3	4	3	3	3	3	4	4	26

Table 8: A tally of the number of positive references to skills and learning

Interview quotes illustrating emerging themes:

### *Increased Knowledge and Understanding*

*“An opportunity to drill down aspects of the reading I didn't fully understand.”*

*“My marks were really good in my TMAs from understanding more in the tutorials.”*

### *Increased Skill Confidence*

*“Probably the calculations in tutorial 6 on trauma and alcohol. I would always have said I can't do Maths, where this tutorial actually forced me to kind of get to grips with maths and I would have to say that I have a different viewpoint about maths after doing this tutorial (task).”*

*“It's (the activities) a very useful tool and I've been doing another module alongside it. I have used the essay planning skill and feel I am ahead of the curve by using it.”*

*“The first hypothesis I did was rubbish and then everyone after (the breakout room task) was absolutely fine.”*

*“The alcohol calculations in tutorial 6, I found really helpful.”*

*“I actually sat there and did the tutorial and then realised that I'd worked it out wrong (in the breakout room task), so that one was massively helpful.”*

*“The leukocyte activity was really beneficial. I found it really helpful for me, just to make sure that I am doing it right.”*

*“Independent and dependent variables were two things that I really did have to stop and think which one was which. So I found that activity really good.”*

*“Probably the calculations in tutorial 6 on trauma and alcohol. I would always have said I can't do Maths, where this tutorial actually forced me to kind of get to grips with maths and I would have to say that I have a different viewpoint about maths after doing this tutorial (task).”*

*“It was an opportunity to practice an important skill.”*

## Confidence and Success

Student	1	2	3	4	5	6	7	8	Total
Number of indications of increased confidence and success	7	3	4	1	2	2	4	2	25

Table 9: A tally of the number of indications of increased confidence

Interview quotes illustrating emerging themes:

### Group confidence

*“With the tutor you might be worrying about looking foolish but because you're just among other students it's okay.”*

*“Your sessions obviously worked because I came in not confident and I left really confident and that I could give my answers and not worry. You fixed it.”*

*“Initially because I've been quite shy, I thought I did the wrong answer. Once others agreed, I felt more comfortable. I found the tutorials a really good help.”*

*“Yeah. So my confidence was my thing and what I learned was actually, even if you said something silly it was OK.*

*In the end, I felt really confident and I didn't mind when I got, you know, if I said something really random or silly. I was quite fine.”*

*“I felt really confident in the end to just speak up and give an answer. But to start with, my confidence was within myself.”*

*“Your sessions obviously worked because I came in not confident and I left really confident and that I could give my answers and not worry. You fixed it.”*

*“With the tutor you might be worrying about looking foolish but because you're just among other students it's okay.”*

### Individual confidence

*“I came into the course not very confident in being able to do stuff. And by the end I was getting 96% in my TMA.”*

*“I attend tutorials because the activities which covered stuff like counting the leukocytes, specificity, experimental conditions and things and was incredibly useful because it made you feel much more confident.”*

*“Actually it gave me a lot more confidence.”*

*“My marks were really good in my TMAs from understanding more in the tutorials.”*

*“The activities were incredibly useful because it made you feel much more confident.”*

*“One of our fellow students was excellent at chemistry and she gave me a lot more confidence because of course I am useless at it and she was trying to balance chemical equations. Actually it gave me a lot more confidence seeing her actually writing it out.”*

### Fun and enjoyment

Student	1	2	3	4	5	6	7	8	Total
Number of indications of perceived fun and enjoyment throughout tutorial	2	1	5	0	1	2	2	1	14

*Table 10: A tally of the number of indications of perceived fun and enjoyment throughout the tutorial.*

Interview quotes illustrating emerging themes:

#### *Welcome activity fun*

*“Yeah, I think my teacher had a bit in the beginning with, like little jokes. And then they would ask what your favourite joke was. I think repeating that sort of thing at the midpoint might add a little bit of humour.”*

#### *General Tutorial enjoyment*

*“Everything to me was good. Like the visuals, the fun and using cartoons, using funny scenarios. It works well, I learn well from that.”*

*“Really, really enjoyed it, really enjoyed it and loved it all, really!”*

*“She did little exercises where you had to make statements against each other and draw lines and stuff and that was great.”*

*“The time went so quickly and covered so much. They’re brilliant.”*

*“These breakout sessions are very well designed.”*

*“I would really encourage you to use these sessions again next year we kept encouraging our tutor to do things like polls and drawings and all sorts of stuff, and they really got into it.”*

*“It was engaging, it was fun. And I found it very helpful.”*

*“The slides are fantastic. I took a picture of them on my phone.”*

*“I actually just really enjoyed the interaction. When I got to the TMA and had to write an essay, I’d done all that stuff. It was so good. I really enjoyed that.”*

*“We worked in small break out groups to share calculations which was highly participative and engaging.”*

### Barriers and problems

Student	1	2	3	4	5	6	7	8	Total
Number of comments regarding barriers or problems	1	1	0	1	4	2	3	1	

Table 11: A tally of the number of comments regarding barriers or problems.

### Interview quotes illustrating emerging themes:

#### *Personal discomfort*

*“At first it’s funny because you go into a breakout room and it’s very quiet. It’s like, who’s gonna say something? Who’s gonna speak first.”*

*“The first breakout room, everyone froze and didn’t really speak and it was a bit awkward. If I’m being honest – it felt a bit awkward.”*

*“In actual fact the breakout rooms disrupted the flow of the tutorial. I don’t think they work. We should probably use 15 minutes to say hello to everyone and then the breakout room might work.”*

*“It’s like coming into a room, only it’s a virtual room. There’s a physical element to it, so I visualise it as people walking into a room. They’ve got a load of books. You’re looking for a seat, you know, if it’s not a regular classroom that you’re in, you’re looking for a seat. You’re shuffling around. You’re saying hello to different people. You’re nodding. There’s an actual virtual element to that as well.”*

### Technical discomfort

*“In the breakout room at first there were a lot of messages going on from the tutor and it was distracting.”*

*“You have to be a really fast typist if you are using the chat box.”*

### Internet/connectivity problems

*“The only thing was like a recurring issue in a couple of tutorials, like the audio was sort of broken up.”*

*“The only trouble I had was once when I missed a tutorial I had to watch it on playback. But it kept freezing.”*

*“If we all came in at once. It was difficult for the tutor to listen to everyone speaking, because the technology would just break down. I found Adobe very clunky.”*

*“Adobe Connect seems to be the least successful implementation of meetings that I have done.”*

### Improvements and Positive aspects

Student	1	2	3	4	5	6	7	8	Total
Number of comments regarding improvements and positive aspects	1	1	2	2	4	3	2	3	18

Table 12: A tally of the number of comments regarding improvements and positive aspects.

Interview quotes illustrating emerging themes:

### Tutor praise

*“My tutor has been a massive help and attending tutorial a massive help, helping me with tactics or skills.”*

### Tutorial praise

*“I would definitely advise attending tutorials because I believe that they are key to helping.”*

*“I would put the tutorials above everything else. If you are running out of time and you’ve got activities, if you’re able to just take something very quickly from them, do it because I think the tutorials are a reflection on my grades.”*

*“I liked the smaller group size towards the end of the year because it was probably more personal you know. There may have been a wee bit more chat and communication that way.”*

#### *Breakout room praise*

*“Really successful. I never came out of one thinking what. Was the point in that? They were really helpful.”*

*“But I never came out of those breakout rooms thinking, well, what was the point of that? I always learnt something.”*

*“In the breakout room, not only was it to do the task but also to have a bit of a chat with the other student as well. We’d sneak in a bit of a discussion on something else like our previous TMA result or something in the midst of the task.”*

#### *Improvements*

*“(The breakout task) It was more successful when there was kind of a time limit given.”*

*“It’s really difficult to come into a room and go ‘Yeah. Right. Let’s get on with this.’ You know when you haven’t even spoken to any of them or interacted with any of them in any way. We should probably use 15 minutes to say hello to everyone and then the breakout room might work.”*

*“Yeah, I think my teacher had a bit in the beginning with, like little jokes. And then they would ask what your favourite joke was. I think repeating that sort of thing at the midpoint might add a little bit of humour.”*

*“We had to gallop through quite complex ideas. I’ve not done any learning for a long time and I guess it would have been better if some of the tutorials were at a gentler pace. It might give the breakout rooms a bit more time.”*

*“I think actually the best thing that the tutor could do is make it as comfortable for themselves and then that way their students will feel comfortable too.”*

*“In actual fact the breakout rooms disrupted the flow of the tutorial. I don’t think they work. We should probably use 15 minutes to say hello to everyone and then the breakout room might work.”*

*“So I think my ideal tutorial would be maybe 45 minutes of an overview of a topic and then like a breakout room to kind of test the understanding.”*

*“And I think the more people get involved then the less sort of awkward and the less reserved they become.”*