



## Samenvatting

### Context

UCU streeft naar interactieve leerervaringen. Studenten worden actief betrokken bij het onderwijs en er wordt gezocht naar mogelijkheden om sprekers op afstand een (interactieve) lezing te kunnen laten geven. We zijn benieuwd of dit type afstandsonderwijs (waarbij de spreker de studenten kan zien en horen) mogelijk is binnen de UCU. Daarnaast zijn we benieuwd naar manieren om de samenwerking tussen studenten actiever te laten verlopen. Het lokaal Locke D is om deze redenen ingericht met een **camera en een microfoon** voor de interactie tussen spreker en studenten. Er is een **interactief whiteboard** aanwezig en er zijn **drie schermen** geplaatst voor studenten om mee samen te werken. Als laatste zijn er **speciale stoelen** geplaatst waarmee studenten zich vrij door het lokaal kunnen bewegen.

### Mechanismes

Voor effectief gebruik van de mogelijkheden van Locke D is de docent belangrijk. Om achter de redenen voor het gebruik van Locke D te komen zijn docenten geïnterviewd. Daarnaast zijn de ervaringen van studenten belangrijk. Als studenten het belang van de stoelen, schermen, etc. niet inzien, zullen zij minder snel geneigd zijn om de middelen in te zetten tijdens het leren.

### Uitkomsten

Docenten gebruiken Locke D met een duidelijk doel. Studenten ervaren de sterk wisselende groepsamenstelling als positief.

### Opvallendheden

- De docenten gaven aan dat Locke D beter past bij studenten die meer ervaringen hebben met samenwerken.
- Locke D is minder geschikt voor 'echt' groepswork (maken van posters of mindmaps).
- Het tafeloppervlak van de stoelen is net groot genoeg voor een laptop.
- Het samenwerken in Locke D kan snel 'te gezellig' worden.

### Belangrijke kanttekeningen

- Er zijn maar twee docenten geïnterviewd.
- De ervaringen van studenten zijn gebaseerd op observaties en groepsinterviews.

Hierna vindt u het evaluatierapport.



## Evaluation Report Locke D

**Project title:** Locke D evaluation

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### Summary

Locke D is a classroom with several (technological) features that could enable active learning and multiple different ways of working. In order to see how these features are being used and are evaluated by the teachers, we interviewed teachers about their experiences. We were also interested in how students used these features and designed a digital questionnaire to investigate students' perceptions. Due to the low response rate for the interviews and questionnaire, the conclusions in this report are not to be generalized. However, from these interviews and observations some interesting conclusions are formulated. Based on these results, recommendations could be made for future decisions about new (technological) features in the classroom.



## Project description

*UCUs best classroom experiences are interactive. We are especially interested in solutions that would make it possible to bring persons into our classroom interactions that are not physically present on our campus. In particular, we would like to make it easier to (1) organize guest lectures with speakers who are elsewhere (in such a way that they can hear and see everyone in the room, and (2) collaborate with groups that are present elsewhere (for example, to collaborate with student groups at other institutions). These aims are in line with our mission to internationalize, and to engage with society at large.*

In that context, Locke D was set up. Locke D is a classroom at UCU that has multiple advanced features. These features can be used to create an interactive classroom experience. There is a system set up for distance education with a **camera and microphone** to allow for interactive conversation between speaker (abroad) and the classroom. An **interactive whiteboard** allows teachers to write notes, explain difficult concepts graphically to students, and, subsequently, send those notes to the whole class. Three **wall-mounted screens** allow multiple students to collaborate while working on a project. Everybody in the group can clearly see what they are working on. Finally, Locke D has specially designed **chairs for collaboration**. These *steelcase nodes*<sup>1</sup> (see image on page 1) are freely movable, have a compartment for your backpack, and have an attached table for your laptop.

Hence, these solutions are meant to increase collaboration amongst students, in face-to-face situations as well as in a distance education setting. This study aims to investigate to which extent these objectives are met by Locke D.

## Research questions

In order to evaluate how Locke D is used, we need to know how teachers intended to use the classroom. Therefore, one of our research questions was: *What makes teachers decide to use Locke D for their classes?* Connected to our first research question, our second research question is: *Do teachers intentionally use Locke D (for instance, to enhance collaboration), how do they do this and what are their experiences?* We are also interested in the student perspective and, therefore, our third research question concerns: *How do*

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<sup>1</sup> <https://www.steelcase.com/products/collaborative-chairs/node/>



*students experience the different possibilities and facilities in the classroom?* Lastly, we are interested in how teachers experience lecturing remotely using the camera.

## Teachers' considerations concerning Locke D

In order to explore what makes teachers decide to use Locke D, we have interviewed two teachers about their reasons to use Locke D and their experiences teaching in Locke D. Below we will each teacher's experiences separately.

### **Teacher 1**

Teacher 1 has been using Locke D during a first year introductory course at a Bachelor level. Approximately 50% of the students are international students. When asked why the teacher decided to use Locke D for the course, the teacher gave the following reasons:

- 1) To have an *interactive classroom*. The teacher indicated that (s)he likes having students working in groups and thought that the *steelcase node* chairs would be helpful to quickly move from a lecture to a group work setting.
- 2) The teacher wanted to try out the new classroom and discover its teaching possibilities.

However, after using Locke D for three weeks, the teacher decided to change back to a normal classroom. Although students seemed to like the classroom and it created a good atmosphere, the teacher had the feeling that using the chairs was too disturbing and noisy for the students, and too 'cozy' (in Dutch: *te gezellig*).

In addition, this teacher has not (yet) used the room for collaborating with external lecturers, but will think of this possibility in the future. Teacher 1 mentioned that inviting external lectures should be in line with your learning goals and that teachers should also have people in their network interested in this collaboration (which can be challenging).

### **Teacher 2**

Teacher 2 has been using Locke D with 27 students at a level 1 course. This teacher had decided to use Locke D because of the interactive whiteboard and the possibility to record the whole process when presenting (e.g., a formula). In domains such as chemistry, you



do not want to show students the whole process at once, but teachers might instead write down the process as they explain it (step by step). When recording this process (without voice over), the teacher can reuse it as knowledge clip. This is very useful for students. Also, the possibility of making snapshots was very attractive to the teacher.

The teacher did not use the *steelcase* chairs to stimulate collaboration and group work during this course. According to the teacher, the tutorials and assignments were not suitable for group work. However, teacher 2 is considering to use a Flipped Classroom model in the future. For example, by having students watch a knowledge clip before the tutorial. In this case, the use of *steelcase* chairs might be useful during the tutorials to stimulate deep discussions.

Similar to teacher 1, teacher 2 does not use Locke D for external lecturers, the teacher did not see the need of inviting guest lecturers for this course.

## Teachers' use of Locke D to encourage collaboration

We were also interested in the teachers' ideas concerning the use of Locke D to encourage collaboration amongst students. Again, we will discuss the teachers' ideas separately.

### **Teacher 1**

Teacher 1 was only interested in using the chairs (see also above), not the interactive whiteboard. At the beginning, this teacher felt annoyed by the interactive whiteboard, because (s)he did not intend to use it interactively and got annoyed by it. For instance, while presenting, teacher 1 touched the screen and things moved accidentally. However, after a couple of weeks, (s)he got used to this function and was no longer annoyed by it. Still, (s)he indicated to have no intention of using the whiteboard interactively. Teacher 1 has not made any use of the wall-mounted screens.

Moreover, teacher 1 pointed out that a U-shape could be fine for teaching, but that in Locke D a U-shape takes too much space: the room is too small and gets quickly overcrowded. This can be very distracting for students. This was one of the main reasons why the teacher decided to change back to a 'normal' classroom'. The teacher also pointed out that (s)he



was lecturing a lot to first year Bachelor students. Next year (s)he might consider using the room for a level 2 course involving a lot of group work.

In addition, teacher 1 indicated that the quality of the products made by students is not necessarily better or worse using Locke D. However, for short group assignments (e.g., think-pair-share better, discuss with the neighbors, etc.) Locke D might be better suited than a normal classrooms, but that for 'real' group work it is better to use normal tables (e.g., to create posters, mind-maps, etc.). The small tables on the *steelcase* chairs are too small for those types of group work.

### **Teacher 2**

In this course, teacher 2 only used the interactive whiteboards (see also above). The teacher used Locke D in each lesson of this course. However, teacher 2 did not use the chairs to stimulate collaboration. The teacher stated that students in the course prefer to work individually (or with the neighbor). The teacher indicated that the *steelcase* chairs do not force students to sit in groups (with a fixed setting). As a result, students start working individually if the teacher does not explicitly instruct students to form groups. In addition, teacher 2 thought that discussing in groups might be useful when learning mathematical skills and might change the assignments in the future in order to incorporate group discussions.

Lastly, the teacher mentioned that students think that Locke D creates a restless atmosphere in the classroom. They claim this might be due to the length of the room: the room is too small. This is in line with the comment made by teacher 1. Teacher 2 also mentions the limited space on the tabletops. Even drinking a cup of coffee is made difficult because of the small tables. In addition, teacher 2 mentioned that some students have asked to move back to normal classrooms in the course evaluation.

## **Students' experiences and observations in the classroom**

In order to investigate the students' experiences with Locke D, we developed a questionnaire to be distributed amongst students who had participated in a course in Locke D. Furthermore, we observed one group of students during class and interviewed them afterwards in order to get an overview of the different experiences of students. Regrettably,



we were unable to distribute the questionnaire to the students. Therefore, we will base our view of the students' experiences solely on the observation and interview. First and foremost, students liked the setup in the Locke D classroom. As an example, students pointed out that the *steelcase node* chairs allowed them to freely move around and to quickly collaborate with multiple and different students. They compared this to other courses where they usually stick to their usual group members. Students state it is refreshing to hear others' viewpoints and it is nice to get to know other people. The students questioned here, had not used the wall-mounted screens yet, therefore could not comment on them. However, when asked if they had the requisite cable to connect their laptop to these screens, only half could answer confirmatively (i.e., the screen require an HDMI connection). Some students also had some practical issues with the chairs. Although the free movement was viewed as positively by most students, the movement could also lead to spilling their coffee (or other liquids). An experience shared by many students. When probed about these spillages, students answered that the tabletops were too small and that it only fitted a laptop and nothing else. This is in line with teachers' perceptions (see previous section).

In short, students enjoy the *collaboration* that is mediated by the *steelcase node* chairs. It is stimulating to collaborate with people outside of your normal group. Some practical concerns were the available space on the tabletops. Experiences with the interactive whiteboards were not explored in this short interview. In the future, these could be explored using the questionnaire (or interviews).

## Conclusions and recommendations

The main research questions in this evaluation concern teachers' and students' experiences with the UCU classroom Locke D. In order to investigate these experiences, we conducted interviews with two teachers and observed and interviewed one group of students. From the **experiences of the teachers**, we learned that they considered to use Locke D because of specific *educational reasons* (i.e., collaboration and interactive whiteboard), not because of practical reasons (e.g., the only room available, etc.). In addition, teachers indicated that Locke D might be more suitable for more advanced students who need to *collaborate in group work* and less suitable for less experienced students or lectures. To be even more specific, Teacher 1 pointed out that Locke D was useful for short group assignments (such



as think-pair-share or discuss with your neighbor), but might be suitable for 'real' group work (such as creating posters or mind-maps). The *tabletops* on the chairs are *too small* to create group products. Finally, teacher 2 stated that, if not otherwise instructed, students tend to start working individually in the current setup. They do not form groups spontaneously. However, when asked to form groups, students indicate that they enjoy the classes in Locke D and the collaboration using the chairs. They especially enjoyed engaging in discussions with group members they do not normally encounter.

Due to the limited information used for this evaluation, strong recommendations cannot be inferred. However, some **interesting indications** could be distilled. For instance, when choosing a classroom, decide if you are going to use *small group work* (such as think-pair-share, or quickly discuss with the neighbor) or more substantial group work (such as creating a poster). Locke D seems more suitable for the former, less so for the latter. Additionally, we could recommend teachers who intend to have student work in groups to carefully *design the tasks to trigger students' teamwork* (if this is in line with your learning goals). If left to their own devices, students might prefer to work individually. From the experiences of the teachers, we could also advise teachers who have not yet worked with an interactive whiteboard to have a *practice run*. It takes some practice and you could encounter some technical problems (e.g., previous teacher has been using the dual display function).

To gather more information to answer the research questions in the *future*, we could distribute the *questionnaire* amongst first year students who attend courses in Locke D, or teachers might include one or two questions about students' perceptions of Locke D in their course evaluations. Also, if Locke D is used for *distance education*, this could be explored as a case study. It might also be interesting if more classrooms will have *steelcase node* chairs to investigate how the *size of the classroom* interacts with the usability of the chairs, as both teachers indicated that the size of the classroom was not optimal for the chairs (the room is too small and gets quickly overcrowded).

## Highlights

- Locke D seems preferable when the teaching format includes small group tasks.
- Students enjoy the collaborative character of Locke D (when asked to collaborate).
- Tasks should be specifically designed to stimulate collaboration.