

Teaching & Learning Lab, Activity Report 2017

Utrecht University



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www.teachinglearninglab.nl/en/



Utrecht University

TLL Teaching &
Learning Lab

Executive summary

After the grand opening in November 2016, the year 2017 was the first year in which the Teaching & Learning Lab (TLL) of Utrecht University (UU) was operational. TLL consist of two lecture rooms or learning spaces for innovative teaching practices and a studio for recording educative clips. TLL was used extensively for innovative higher and secondary education courses, for summer course and students' challenges, for ICT and educational training sessions and workshops. In the studio, numerous clips were recorded for blended and online learning activities. In monthly inspiration cafés, professionals with an interest in education innovation gathered and in November, over 150 visitors participated in the TLL Autumn Festival. TLL attracted high-level national and international delegations from a variety of education institutes, policy-makers and researchers.

In 2017, TLL hosted a total of 39 higher education session, three student challenges, three summer courses and over 35 training sessions and workshops. For secondary education, TLL has hosted 55 classes. The lecturers used TLL's flexible floor plan and furniture and tools such as interactive whiteboards, an interactive wall, short-throw beamers and 360 degrees-cameras. During the academic year, the floor space occupancy of the TLL lecture/experimentations rooms is estimated at 70%.

In the studio, 75 clips were recorded using the transparent Lightboard, 42 clips without a screen and 11 clips with the interactive whiteboard. Many of these recordings have been or will be used in projects aiming at online and blended learning.

An exact account of the numbers of lecturers/teachers that have made use of TLL per faculty could not be given. We estimate that approximately 50 lecturers and teachers from the Faculty of Science have used TLL facilities, 10 from the Faculty of Geosciences, 10 from the Faculty of Social and Behaviourial Studies, 10 from the Faculty of Medicine, 10 from the Faculty of Humanities and, finally 10 from other institutes, including the Hogeschool Utrecht and the University of Humanistic Studies.

After the summer of 2018, TLL staff will further optimize the teaching tools, train users of TLL facilities and continuously evaluate all TLL activities. Following the 'early adaptors', also the 'early and late majority' of teachers will be stimulated to test TLL facilities. The use of TLL and research facility will be promoted, as well as the potential for distance learning. In addition, TLL will forge new collaborations, e.g. with other regional educational institutes, promote the design of research projects in the facilities. TLL will host the recently started university project 'future learning spaces'. in which new educational set-ups will be designed and tested.

TLL is initiated and hosted by the Freudenthal Institute of the Faculty of Science and supported by the Faculty of Science¹, the Centre for Academic Teaching² and the Educate-IT program³. In addition, TLL cooperates with suppliers of equipment, including the companies Ricoh and HP. This report provides a brief overview of the activities that took place in TLL in 2017 and a preview on 2018.

¹ www.uu.nl/en/organisation/faculty-of-science

² www.uu.nl/en/education/centre-for-academic-teaching

³ www.educate-it.uu.nl/en

1. Description of TLL, as of January 2018

1.1 Lecture/experimentation rooms

The TLL has two lecture/experimentation rooms:

Large room (BBG 3.22)

The large lecture/experimentation room (30 tot 40 persons) is suitable for a variety of educational settings and pedagogical research. On request, a lecture or lesson can be recorded by observation camera's fixed on the ceiling or 360 degrees-cameras. There is an interactive wall for team work (*Nureva span*), benches along the windows. The set-up of the floor can be rearranged using mobile scrum tables (6-8 persons) that are adjustable in height, small two-person tables and chairs.



Large lecture/experimentation room

Small room (BBG 3.19)

The small lecture/experimentation room (up to 25-30 persons) is used a break-out room and room for workshops, trainings, lectures and inspiration cafes. Similar to the large room, it can be furnished with mobile scrum-tables, small, tables, chairs.



Small lecture/experimentation room

In both lecture rooms, additional equipment can be placed, such as one or several Interactive Whiteboards, learning tables (horizontal multi-touch tables), short-throw beamers and laptops.

In the Fall of 2017, the observation camera's and interactive wall have been installed and tested. Users of the lecture rooms are supported by TLL and Educate-IT staff. In addition, users can visit training workshops on ICT equipment offered by TLL.

1.2 Studio

In 2017, the studio is fully equipped. Lecturers and other users, such as students have used it extensively.

Professional operator-supported recordings

In the studio, an operator supports the lecturer in preparing in advance, during the studio sessions (studio-set-up, light, sound) and edits the video. In addition to a simple



Studio

video with white or standard background, the users can choose to use a Greenscreen, Lightboard or Interactive Whiteboard.

In a Greenscreen video, any picture, illustration or movie can be integrated in the background, during editing. The Lightboard acts like a traditional blackboard – the lecturer speaks while writing and drawing – except that he is filmed through a glass plate, the Lightboard. In this way, those who watch the clip see the lecturer faced towards the camera. The text on the Lightboard, which is in mirror writing, is flipped during editing, so that it can be read. Finally, the lecturer can use an interactive whiteboard for his presentation and is filmed next to it.

Do-it-yourself recordings

The TLL studio contains a set-up for do-it-yourself recordings, which can be reserved by lecturers who want to make a clip themselves and store them in Mymediasites. The do-it-yourself set-up is one of five in UU (campus and city centre).



Do-it-Yourself set-up

2. Higher education

2.1 Courses for ECTS

A number of regular courses (for ECTS) was staged in the TLL. This includes the ‘Wetenschapper in Advies’ master by Jasper van Winden, a course of 12 sessions of between half and one day, in Spring of 2017 and 2018. Recently, Van Winden has updated his course, using a combination of blended learning (clips to be studied in advance) and more interaction among students and with the lecturer during sessions. He also tested classroom arrangements, in which the students are seated in teams around scrum tables and the lecturer is positioned in the middle. By using six interactive whiteboards and beamers simultaneously, all students could follow his presentations. Course evaluations have shown that as a result of the room settings, students feel more connected - this was especially the case for men. In addition, the use of clips (Scalable Learning) was assessed positively by students and teacher. Based on these evaluations Jasper van Winden was awarded a prize of the Faculty of Science’s department of biology.

Twice a year, the TLL hosts the CoChallenge, a two-week university-wide elective course for 25-30 students (third year bachelors and masters). The municipality of Utrecht provides the challenge and after two weeks of hard work, student teams pitch their ideas and vision on solutions. In the October challenge, the topic was: ‘Co-create: life’s professional challenges’

In 2017, the following courses were taught in TLL:

Month	Course	Target Group	Nr of sessions	Faculty
Jan	Techniques of Futuring	Geosciences masters	4	Geosciences

Month	Course	Target Group	Nr of sessions	Faculty
Jan	Wiskundige Denkactiviteiten		1	Science
Feb-Apr	Wetenschapper in Advies	Science bachelors	12	Science
Mar	Oriëntatie op de Onderwijspraktijk	UU Bachelors	2	Science
Sep	Master-cursus 'Kick off Biology of Disease	Biomedical students	2	Medicine
Sep	Introduction to Science Education and Communication	Masters Science	2	Science
Oct	CoChallenge	UU bachelors / master	10	UU
Nov-Dec	Techniques of Futuring	Geosciences masters	6	Geosciences

In 2017, a total of 39 sessions ECTS-courses were taught in TLL.⁴



2.2 Student challenges

In addition to the CoChallenge (see 2.1), TLL hosted the Sprout Creator competition in November, aimed at developing educative applications for the Sprout computer, In May, TLL also hosted the one-day Advident challenge, for connecting students with organizations, such as companies and NGOs.⁵

⁴ In January-May 2018, a number of courses have been scheduled in TLL, including 'Wetenschapper in Advies' and the bachelor course 'Beta in bedrijf en beleid'.

⁵ The two-week CoChallenge has been organized in April 2018 (25 students participated).

2.3 Summer courses

Numerous summer courses were staged at TLL, including the annual two-day summer course by Educate-it, aimed at the use of IT Tools and a two-week course on mathematics education by the Freudenthal Institute.



Learning Table

2.4 Workshops and training sessions

In 2017, over 35 workshop and training sessions have been organized, including training sessions for the various ICT-tools, educational approaches, and masterclasses on curriculum design. A selection of highlights: 'Blended learning' by Educate-IT, 'A classroom that works' by Live-long Learning, 'Education in 2032' by Paul Schnabel, 'ABC-workshop Redesigning a course', by UCL, 'Inquiry-based mathematics education' by the Freudenthal Institute.⁶

3. Secondary school teaching

3.1 U-Talent classes

Both lecture rooms are extensively used by U-Talent, a UU program for talented 15-18 secondary school students from partner schools, who are being taught science lessons by specialized teachers/lecturers, from the Freudenthal Institute and partners schools.

In 2017, 55 classes were organized, in which 26-30 students participated. In the period, January-April 2018, these classes continued, two days a week. In particular, teachers have used the mobile scrum-tables, small tables, chairs in various settings and one or several interactive whiteboards.⁷



Using the Interactive Whiteboard

3.2 Summer course junior

Young pupils, aged 10-14, are immersed in science for a whole week. This summer school has been organized once in 2017 and will be organized twice in 2018.

⁶ In January-May 2018, the series of workshops continued, e.g. on topics as 'Create your own course' and 'Een werkgroepruimte die werkt'. Also, numerous training sessions for the use of the interactive whiteboards, the interactive wall and the observation cameras have been organized.

⁷ In Spring of 2018, several teachers indicated that operating the whiteboards was challenging. This has led to a number of technical and software adjustments and a training session at the end of June.

4. Events

4.1 Inspiration cafés

Each year, TLL hosts 8-10 inspiration cafés. In these cafés, UU and external guest speakers present an educational approach, a tool, a new product etc. Over a beer, participants can interact with the speaker. This series has been continued in 2018.

4.2 Tours

A wide variety of institutes and delegations visits TLL. The visits include:

- UU faculties, including FSW and REBO
- University Museum Utrecht
- Members of Parliament with an interest in education
- High-level policy-makers from ministry of education
- Universities, including Leiden, Eindhoven University, ROC-Midden Nederland and Hogeschool Utrecht
- UU Executive Board members (Annetje Ottow, Anton Pijpers, Bert van der Zwaan)
- Delegations from Sweden, Norway, Iceland
- SSR, training institute for Dutch judicial system

In 2017, TLL hosted 18 tours.

4.3 Autumn Festival

Every autumn, TLL organizes and hosts the TLL Autumn Festival. In 2016 and 2017 150-200 participants, secondary school teachers and students, lecturers, partners from industry, policy-makers, researchers visited the festival, where they could attend sessions on topics such as new educational approaches, new tools, AR and VR, etc.



TLL Autumn Festival 2017

4.4 Other events

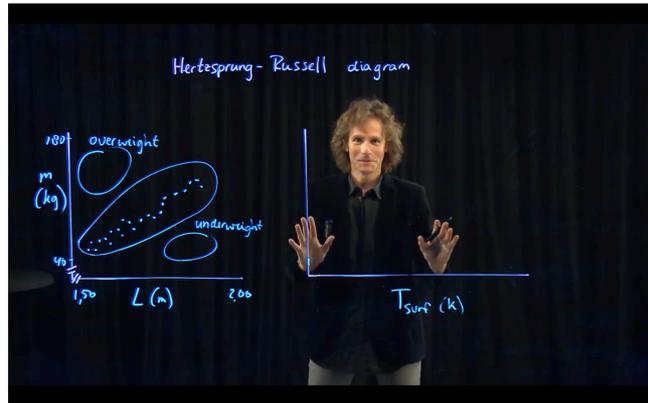
TLL is primarily aimed at hosting education-related events, such as courses, workshops, challenges and educational research. However, when the facilities are available the rooms are also used for research meetings, PhD meetings, vision meetings and other UU-institutes (in 2017, 55 times).

5. Studio recordings

Similar to the lecture/experimentation rooms, for the studio, 2017 has been a pilot year.

5.1 Lightboard recordings

Especially, the use of the Lightboard has been successful. In 2017, a total of 76 clips have been recorded using the Lightboard, for a variety of lecturers and student's projects. Most of these clips have been used for educational purposes. The lightboard clips were viewed 5.300 times (23 June 2018).



Lightboard recording: Special Relativity course

Course / module / project	Target Group	Nr of clips	Faculty
Mathematics education	Secondary school	3	Science
Experimenten en registreren	Psychology bachelors	5	Social
Physics	Secondary school	2	Science
Kwaliteit en veiligheid in zorg-ethisch perspectief	Students	3	(Humanistics)
Master Environmental Science	Geosciences masters	1	Geosciences
Mathematics education	Mathematics students	7	Science
Blended coaches	ROC coaches	4	(ROC)
Writing a thesis	Social science students	2	Social
Basics of mathematics and physics - 2	Chemistry bachelors	6	Science
Wiskunde D-Online	Secondary school	6	Science
U-Talent	Secondary school	2	Science
Special Relativity Theory	Bachelors in-service teachers	26	Science
Physics	Physics bachelors	3	Science
Informatics	Informatics students	2	Science
Psychology of Eating Behaviour		1	Social
Student's project 'Education and pedagogy'	Social sciences	3	Social
Student's project 'OUTCASST'	UMC	2	Medicine / UMC

5.2 Daylight recording

In 2017, 42 so-called 'daylight recordings' were made, clips in which the lecturer (or student) presents without a screen.

Course / module / project	Target Group	Nr of clips	Faculty
Open Online Education Physics for Surinam	Physics didactics students	36	Science

Course / module / project	Target Group	Nr of clips	Faculty
Validity of tests	Lecturers	1	Social
Universiteitsraad, fractie Vuur	Students	1	UU
Online feedback - Interview Renée Filius	general	1	UU
Interview with scientist	General audience	1	Science
Use of Remindo-tool in Geographies of Health	Lecturers	1	Geosciences
Use of Remindo-tool in Evolution and ecology-course	Lecturers	1	Geosciences

5.3 Whiteboard recordings

The studio facilitates recordings in which the lecturer is positioned next to whiteboard. A total of 11 of the whiteboard clips have been produced.

Course / module / project	Target Group	Nr of clips	Faculty
Design research in education	Pre-service teachers	4	Science
De wijk van de toekomst	Geosciences students	1	Geosciences
Hoe lees ik een wetenschappelijk artikel	Secondary school	1	Science
Serious game based learning & physics education		1	Science
Enhancing causal reasoning in biology education	Pre-service teachers	1	Science
Chemistry education		1	Science
Guidelines for producing and selecting educational videos	Lecturers	1	Science
Misleidende statistieken		1	Science

5.4 Other recordings

The Do-it-Yourself set-up and the Greenscreen have been used very occasionally. The Do-it-Yourself set-up was used twice by individual teachers and four clips were made for the online project with Indonesia (see 6.3). The Greenscreen has been used in a course for recording educational clips.

The studio has been used for broadcasting webinars during International Masters days. The studio crew also records lectures at locations outside the studio, such as lectures for U-Talent classes.

6. Projects

6.1 Online learning - Special Relativity online course

Project by the Freudenthal Institute, aimed at developing a course for in-service physics teachers on Einstein's special relativity theory. In this project, a 100% online version is compared with a blended version.

In 2017, a first set of Lightboard clips were recorded. This will be continued in 2018 and in the second half of 2018, these courses will be implemented and evaluated.

6.2 Online learning - Mathematics D online course

Project by the Freudenthal Institute, aimed at developing a course for secondary school children who are taught the subject Wiskunde D (Mathematics D). Because of a shortage of mathematics teachers, teaching a subject which is followed by only a few students per school is problematic. By offering an online version for havo (vwo already exists), students can continue following this subject.

In 2017, a first set of Lightboard clips were recorded. This will be continued in 2018 and in 2019, the course will be implemented and evaluated.

6.3 Online course about contexts and models in mathematics education for Indonesia

Project by the Freudenthal Institute, aimed at developing a course for pre-service mathematics teachers at Palembang University in Indonesia. Students are offered an online course in mathematics education and online live coaching.

In 2017, 4 Do-it-Yourself clips have been recorded for the online course. These have been piloted in 2017 by Indonesian PhD students. Then, the improved course has been scheduled in Spring 2018. The intention is to use the Rico interactive whiteboards for the online live coaching. For this purpose, the plan is, in 2018, to ship an interactive whiteboard to Palembang University.

6.4 Monkey Reality

In this project, footage of the behavior activities of the long-tailed macaques BPRC is collected by placing a 360° camera inside and in the outside enclosure of the monkeys. This footage used for both, educational and research purposes.



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Using the 360 camera for studying monkeys

Cooperation with Ricoh

Utrecht University cooperates with Ricoh company in innovating educational tools. TLL can make use of Ricoh equipment, including interactive whiteboards, short-throw beamers, 360° cameras, learning tables and communication software. The whiteboards and short-throw beamers are used in the lecture/experimentation rooms, the learning tables in master student projects and the 360° cameras in the Monkey Reality project in which recordings of monkeys are made for educational purposes. The tools are tested in various projects, including distance learning as well as during daily use in the lecture rooms.

7. Preview on 2018/2019

7.1 Short term activities (starting in 2018)

Optimizing the use of tools

Based on the feedback of lecturers, TLL staff and students, software and hardware issues in the Interactive Whiteboards have been and will be resolved by Ricoh mid-2018.

Teaching users

TLL staff has organized training sessions for various tools, including:

1. Two training sessions for IWB use by student support staff. Additional courses for U-Talent teachers will follow in June and possibly end of August
2. Two training sessions on the interactive wall (*Nureva span*) for UU lecturers and students
3. Three training sessions on the use of observation camera's for UU lecturers and students

Moreover, UU staff and students are invited to test the tools, during monthly OpenLab sessions

Evaluating TLL

All activities staged in TLL will be evaluated. The lecturers or organizers of events will be requested to complete a survey. In this survey, special attention will be paid to the added value of TLL and its equipment and tools.

Pedagogical research

The Augmented-Reality Sandbox was one of the first educational tools investigated in TLL; several activities were aimed at the Sandbox. Since the arrival of the observations cameras in Fall 2017, other types of research were staged, including four sessions of lesson studies. From the second half of 2018, new research projects in TLL are expected.

Promoting the lab among potential users

Promotional activities such as newsletters, stands at education events, the (renovated) website will be continued. On November 30th, the TLL Autumn Festival will serve as a major event for showing the lab's broad spectrum of activities. In addition, an EduChallenge in which students of ROC-Midden Nederland, HKU, HU, UMCU and UU cooperate will be staged in TLL.

In promoting the use of TLL among UU lecturers, extra attention will be paid to faculties other than Science.⁸

Distance learning

In November 2018, Utrecht will host the international summit of the League of European Research Universities (LERU). This summit will focus on digital higher education and will inform the use of digital tools by TLL.

⁸ Already, there have been requests from the Faculty of Social and Behavioural Sciences and the Faculty of Law, Economics and Governance for use of TLL.

The Freudenthal Institute prepares a project in which distance learning is used to teach physical chemistry to bachelor chemistry students at the Anton de Kom University in Paramaribo, Surinam. In 2018, it will be decided whether the project will be continued.

7.2 Mid-term activities

New collaborations

For mutual learning and innovation, TLL welcomes/requires input from external partners. TLL is part of the recently started Smart Education Platform, in which education innovation labs of other organizations participate. This Platform provides a kick-start for developing a longstanding and constructive collaborations with these partners.

New projects

TLL staff constantly contacts lecturers and monitors funding organizations (such as NWO / NRO) for options of designing and implementing projects aimed at education innovation and research in TLL.

In 2018, the UU-wide project 'Future Learning Spaces' will kick-off. TLL contributes to the Educate-it project Future Learning Spaces. Specifically, it has an important signaling and experimentation function.

New didactic approaches

TLL staff regularly scouts new didactic approaches (including ICT-Tools). If needed and feasible, new approaches or tools will be acquired and implemented in TLL.

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- Monkey Reality project: page 10

