



Utrecht
University

Centre for Academic
Teaching and Learning

Knowledge development and teacher professionalisation in Future Learning Spaces

A study evaluation in co-operation with teachers



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Summary

Interactive and activating teaching methods are known to improve students' learning processes and learning results. More and more teachers are therefore working to design activating education. Unfortunately, the layout of conventional teaching spaces often does not facilitate this type of education. The Future Learning Spaces project (FLS) aims to study how the layout of teaching spaces can contribute to the design of interactive and activating teaching, in accordance with Utrecht University's vision.

This evaluation was conducted as a sub-project to gain knowledge and experience on how to optimise the layout and use of the current FLS. The study was conducted in co-creation with education experts, teachers, students, and technical- and administrative support staff. By jointly designing, implementing and evaluating lesson plans, the participants acquired knowledge and experience regarding the implementation of interactive and activating work formats in the FLS, which professionalise and support the teachers need, and how the layout of the current and future FLS could be improved.

The sub-project resulted in:

- 1. A coaching programme for teachers to help support them in designing and implementing interactive learning activities in the current and future FLS.**
- 2. A checklist of action items to optimise the layout of the current and future FLS in order to implement the interactive learning environment.**
- 3. Recommendations on how to design interactive learning activities in the FLS.**





Highlights

- = Co-creative design, implementation and evaluation of lesson plans supports teachers in designing education in the FLS.
- = The desired interactions between teachers (groups of) students and lesson materials during the lessons determine which physical and online facilities, multimedia and technologies the space must have to facilitate the interactions.
- = The sharing of experiences, examples, good practices and visual instructions gives teachers guidelines for the optimal use of the FLS.
- = Teachers and students are very enthusiastic about education in the FLS. The FLS facilitate and stimulate interaction between students during group assignments and collaborative learning. These spaces also stimulate interaction between teacher and students, which they believe contributes positively to the learning process and learning results.
- = Teachers and students would like to (be able to) use FLS more often than is currently possible. Only two of these types of FLS have now been set up at UU and the requests for education in these rooms are much higher than the availability.



*It's the best seminar classroom I've ever been in.
Every seminar room should be like this.* (Student)

Conclusions, Products & Recommendations

This study evaluation aims to result in three end products:

1. **A coaching programme for teachers to help support them in designing and implementing interactive learning activities in the current and future FLS.**
2. **A checklist of action items to optimise the layout of the current and future FLS in order to implement the interactive learning environment.**
3. **Recommendations on how to design interactive learning activities in the FLS.**

1. Coaching programme for teachers

The framework described in Table 1 can be used as a foundation for designing coaching programmes for teachers who have little to no experience teaching in the FLS. In this programme, the materials used, such as the lesson plan, presentation and agendas, may be adapted to the support needs for the relevant target group in the specific context.

PHASE 1. Orientation, problem analysis and design	
OBJECTIVE	
<ul style="list-style-type: none"> = To share experiences designing interactive learning activities in the FLS = To analyse problems with desired activating work formats in the current FLS = To design interactive learning activities suitable for the desired learning objectives and FLS. 	
ACTIVITY	DATA COLLECTION
<p>Session 1 (Online), Teachers...</p> <ul style="list-style-type: none"> • choose work formats for the learning objectives. • share previous experiences and success moments. • conduct a problem analysis on previous lessons. • help one another solve these problems. • determine which new steps to take in designing their lessons in the FLS (e.g.: trying new tools and features, new work formats, etc.) 	(Video) recordings of lesson plans
<p>Session 2 (on location in the FLS), Teachers...</p> <ul style="list-style-type: none"> • receive instruction on the technical possibilities present in the FLS. • determine which opportunities they have to conduct their lesson, and use those opportunities. • determine whether there are supplemental technical opportunities they can use to improve their lesson. 	Notes from the session

PHASE 2. Implementation	
<p>OBJECTIVE</p> <ul style="list-style-type: none"> = Implementation of the lesson plans in the FLS <p>ACTIVITY</p> <p>Teachers implement their lessons in the FLS in the context of their course.</p>	<p>DATA COLLECTION</p> <p>Notes from lesson observations</p> <p>Video recordings of the lessons</p> <p>Evaluation forms (teachers and students)</p>
PHASE 3. Evaluation & Reflection	
<p>OBJECTIVE</p> <ul style="list-style-type: none"> = Evaluation of the implementation of the lesson plan immediately following the lesson in the FLS <p>ACTIVITY</p> <p>Session 3, Teachers share their first impressions of:</p> <ul style="list-style-type: none"> • how they believe the lesson went. • which goals they achieved, and which they did not. • which elements they were able to implement in relation to the lesson plan, which they were not, and why. • what they would have liked to change about the layout of the space in order to better implement their lesson plan. 	<p>DATA COLLECTION</p> <p>Video recording of follow-up interview</p> <p>Notes from follow-up interview</p>
<p>OBJECTIVE</p> <ul style="list-style-type: none"> = Reflect on the design and implementation of the interactive learning activities in the FLS in relation to the layout of the FLS, some time after the implementation of the lessons. <p>ACTIVITY</p> <p>Session 4, Teachers...</p> <ul style="list-style-type: none"> • look back on the implementation of the lesson plans in the FLS together. • share experiences of teaching in the various FLS. • formulate the results of the design of activating work formats in relation to the layout of the FLS. • advise on how 'new' FLS could or should be designed in order to facilitate similar learning activities. • advise on how teachers who will be teaching in the space for the first time can prepare for their lessons and receive technical and educational support. 	<p>DATA COLLECTION</p> <p>Video recording of follow-up interview</p> <p>Notes from follow-up interview</p>

Table 1 The design of the coaching process (inspired by Dolfig, Prins, Bulte, Pilot, & Vermunt, 2021).

2. FLS layout checklist

The checklist in table 2 can be used when designing the layout and furnishings of a FLS. It shows the items you should consider to facilitate the optimal use of the space. The action items pertain to the relationships between the subject of instruction, the professionalisation and support for teachers, and the layout and furnishings of the space.

Interaction between students within a group	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 How many groups of various sizes fit at the tables/work stations?	= Preferably one group per table
0 When and how can online students participate in group discussions?	= Technology and organisation of interaction between students participating online and on location.
0 Can all students in the group participate, listen, and view the work assignment?	= Size and shape of the tables = Use of online and offline media (screen, whiteboards, online platform, ...)
0 Which delegation of roles within the group may be encouraged by the layout and facilities available in the space? Is this desirable?	= Table shape (round vs. rectangle) = Group use of online and offline media = Interaction between students participating online and on location
0 How long do students work in the group layout, and in which postures?	= Sit/stand tables = Height and comfort of the chairs/stools
Interaction between the teacher and the groups	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 How does the space facilitate presentations to the group as a whole?	= Optimisation of the combination of writing and presentation in a group layout (digital, analogue)
0 How can students share digital group assignments with the teacher and other groups?	= Share screens via central control
0 When and how can online students interact with the teacher in a group layout?	= Visibly integrating online students in the on-location group layout, for example via moveable digital screens
0 Can teachers monitor group assignments and offer support as needed?	= Space between the tables to allow teachers to walk around among the groups. = Possibility to view group screens from individual work stations

Checklist (cont.)

Interaction between the different groups	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Is it desirable for the groups to be able to interact?	= Possibility for students to change tables = Possibility to separate groups from one another
0 If so, how can the interaction between groups be organised, both digitally and on location?	
0 If not, how can the interaction between groups be prevented?	
Interaction between students and the content of the lesson materials	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Do all students have access to the lesson materials, either online or on location?	= Sharing lesson materials digitally and on location, both before and during the lesson = Digital and physical presentation, sharing and exchange of lesson materials and student products
0 Can students see the information shown digitally or on location when addressing the entire class?	
0 Can students work on (digital) group assignment products at the same time?	
Diversity of work formats and learning activities	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Which layouts can be used in the space?	= Mobility of furnishings = Size and shape of tables and chairs
0 How often and how quickly can the layout be changed before, during and after the lesson?	
0 Which work formats and learning activities can be organised using the specific layouts?	
Correspondence between lesson design and implementation	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Are the functions of the specific space suitable for the lesson type?	= Potential physical layouts = Hybrid layout for students participating online and on location = Online and physical media and other materials
0 Can all work formats and learning activities described in the lesson plan be conducted in the specific space?	
0 Which preparations must the teacher make to conduct the lesson in the specific space?	= Educational & technical support
0 Which support is needed before, during and after the lesson in order to implement the lesson plan?	

Checklist (cont.)

The ability to use the facilities, multimedia & technology in the FLS	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Which facilities, media and technology may be used for the implementation of the lesson plan?	= Option of using a combination of online and on location facilities, media and technologies
0 Are the teachers and students able to use the facilities, multimedia and technology available?	= Arrange for educational & technical support
0 How much time is needed before and during the lesson to set up the technology and desired layout?	= Schedule extra time to practice using the facilities, media and technology.
0 Which support is available to help teachers and students use the facilities, multimedia and technology?	= Educational support in the development of lesson plans = (Ad hoc) technical support in the use of facilities, media and technology = Good, concise user manuals
Dealing with (un)expected factors through ad hoc adjustments to the lesson plan	
ACTION ITEM	CONSEQUENCE, IMPLICATION & CRITERIA
0 Which problems might occur that could impede the implementation of the lesson plan?	= Conduct a problem analysis and identify crucial aspects of the lesson that must always be able to be implemented
0 Which measures can be implemented to limit the risks posed to the implementation of the lesson?	= Give all materials that you can share to the students before the lesson. = Provide materials used during the lesson both online and offline = Record the lesson, so students can watch it later = Only organise the learning activities that must be conducted simultaneously in the FLS = When students can either participate online or on location, design the lessons specifically as hybrid learning activities
0 Which alternative strategies can be used if unexpected problems occur during the lesson?	= Have a 'plan B'

Table 2. Checklist of action areas for the (re-)design of the FLS

3. Recommendations for designing interactive learning activities in the FLS

Based on the findings and experiences described in this evaluation study, we can offer teachers the following recommendations in the form of a step-by-step plan.

1. Create a lesson plan describing your learning objectives, learning activities & work formats, educational setting and monitoring of the learning process.
2. Determine which interactions between students, groups, lecturers, lesson materials and facilities available in the space (as described above) are integral to the lesson plan.
3. Consider how you want to shape these interactions and which online and offline facilities, multimedia and technology you need to organise the interactions.
4. Prepare to use these facilities, multimedia and technology by reading the instructions, practicing and/or asking technical support for assistance.
5. Draw up a risk analysis for the lesson plan and come up with alternatives for crucial aspects and interactions, so you can still support the students' learning process if something goes wrong.

The participating teachers gave the following recommendations for designing education in the FLS:

- Developing a lesson plan can help make teachers aware of the choices that must be made when designing learning activities relevant to the learning objectives.
- It may be useful to design the FLS teaching activities and reflect on the activities together with your colleagues.
- Make a conscious decision on whether or not to use hybrid teaching formats in the spaces. If you use hybrid teaching formats, make sure to arrange extra support for online participants.
- Make regular rounds to monitor each group's learning processes.
- Have teachers who have already taught in the spaces share their experiences and lesson plans as examples and good practices. One way to share these experiences is in the form of knowledge clips showing how teachers have taught in the space.
- Rate whether the space is suitable for specific activities, for example by using +- and - points.
- Draw up a visual overview of possible layouts in the space, and explain which layouts you can use for specific work formats.
- In addition to an instruction manual for the space, teachers often benefit from attending short meetings or seminars in the space. During these meetings, someone can explain the AV facilities, the technology available in the space, and the teachers can try out the equipment and other facilities.
- Arrange for sufficient availability of the FLS. There is an especially high demand for spaces that are suitable for interactive activating work formats, such as the Active Learning Classroom. The space need not necessarily facilitate hybrid teaching.
- Make access to the FLS as user-friendly as possible. Teachers don't want to have to justify why they want to teach in the space over and over again.



APPENDIX

A. Instruments data collection

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COLOPHON

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