



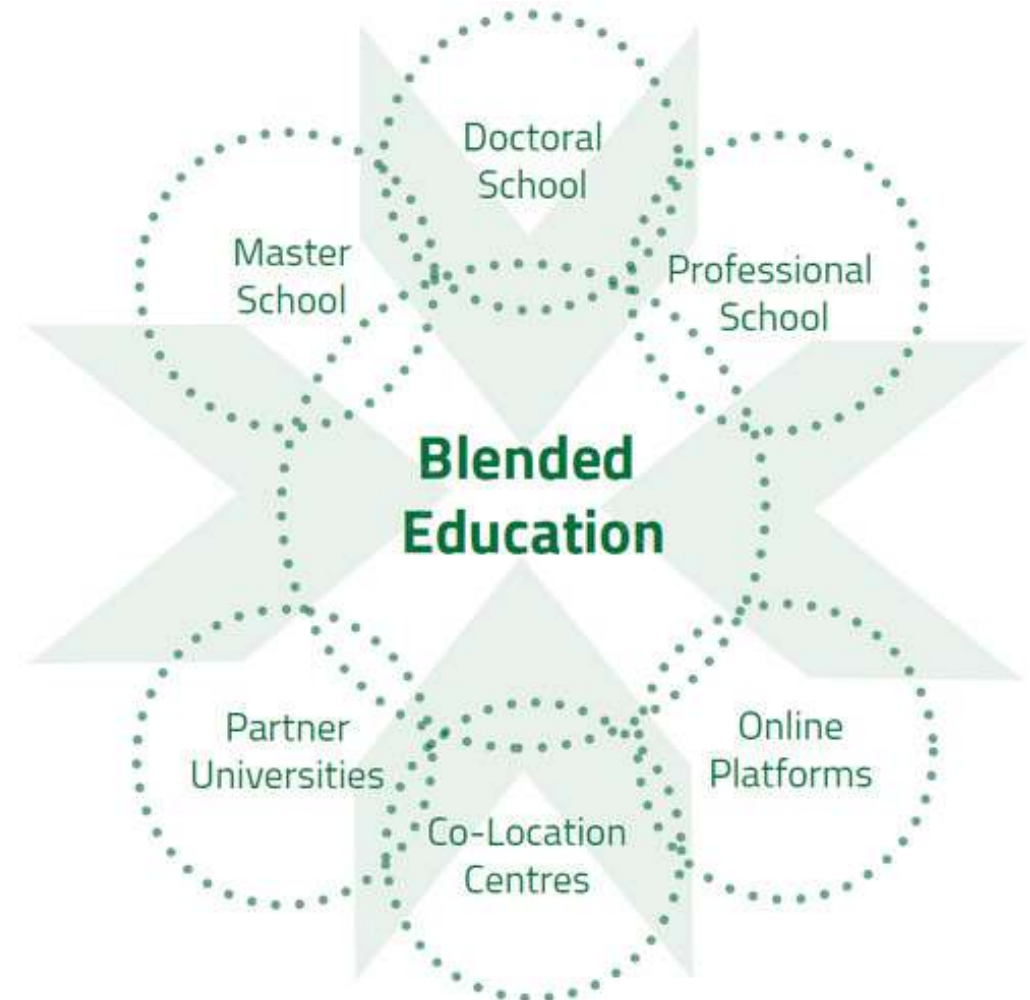
Strategies for pan-european implementation of blended learning for innovation and entrepreneurship (i&e) education

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Introduction

- Part of the mission of EIT Digital (a Knowledge and Innovation Community from the EIT, European Institute of Innovation and Technology) is to train IT graduates at both Master's and Doctorate levels, with strong innovation and entrepreneurial competences
- Each partner university implements an "Innovation & Entrepreneurship" ("I&E") minor of 30 ECTS (European Credits Transfer System) that corresponds to 25% of the credits each student takes during the studies
- EIT Digital has been working now for over three years to implement blended learning strategy with different blended learning models with 18-20 top technical universities all across Europe



I&E (blended) education: contents production and dissemination

- In 2014 we started producing online contents with aim to “blend” our I&E education
- Based on the premise of “teachers-producers”, 7 University producers: Aalto, KTH, U Trento, TUB, TU/e, U Rennes 1 and UPMC (coordinator)
- At the moment we have more than 45h of high quality video contents on different I&E topics
- The videos are packaged in thematic units composed of video contents coupled with a quizzes or an assignments
- Each university in the network is visited, and blended courses are re-designed together with the involvement of the local teachers



*picture taken from a video lecture by UPM

I&E (blended) education : contents production and dissemination

- In 2014 & 2015 production focus on generic I&E concepts
- In 2016 & 2017 production focus on EIT Digital flavoured contents
- In 2018 & 2019 production focus on digital transformation

BUSINESS ANGELS VS. VENTURE CAPITALISTS



*picture taken from a video lecture by Aalto

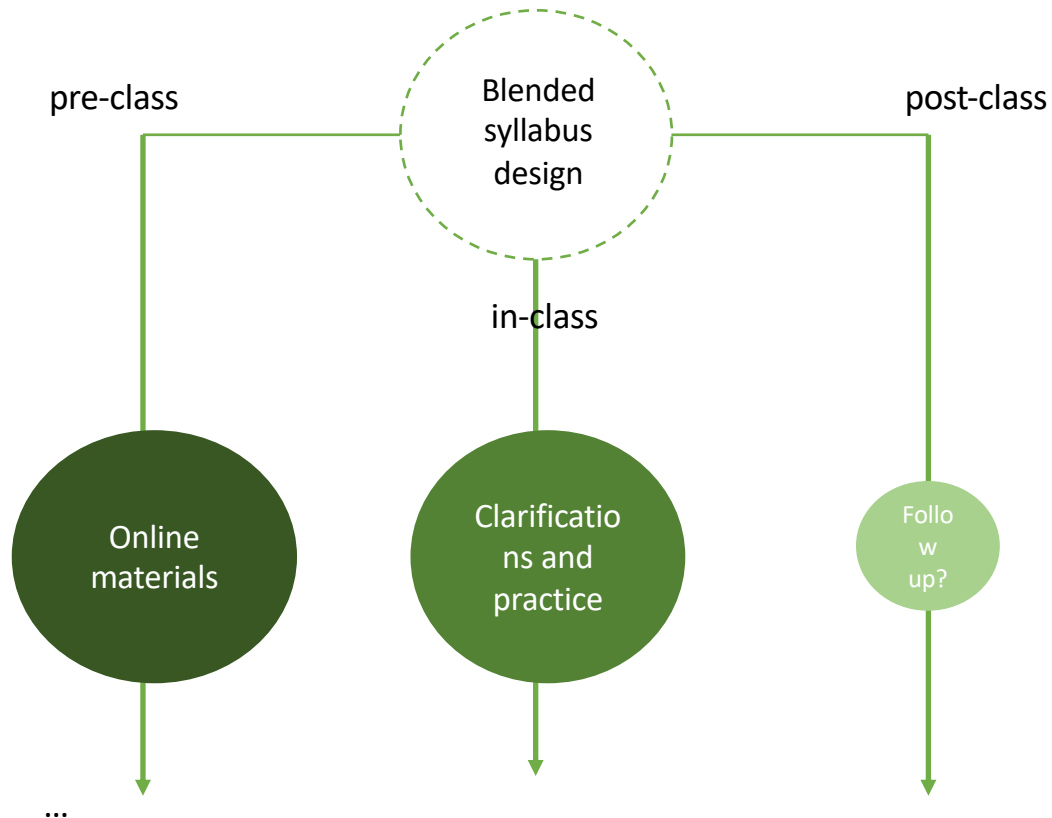
The models: explained

- **Flipped classroom**, where online contents are delivered to students before class and then discussed in class,
- **Blended online course**, pre-packaged online contents with assessments that in most of the cases are associated with supervised sessions in class
- **Online starter kit**, set of online modules with assessments delivered prior to short-span events (such as summer schools for instance)
- **Independent levelling-up**, contents are delivered before class, accompanied with quizzes or assignments, not necessarily followed up in class,
- **Online repository**, online packages made available to cover students' specific needs.



Courses Blending Models

Approach based on flipped classroom



Requires less work to setup as approach, but requires syllabus changes and follow up of contents in class

the circle size indicates amount of workload

darker color = substantial
lighter color = can be skipped

Courses Blending Models

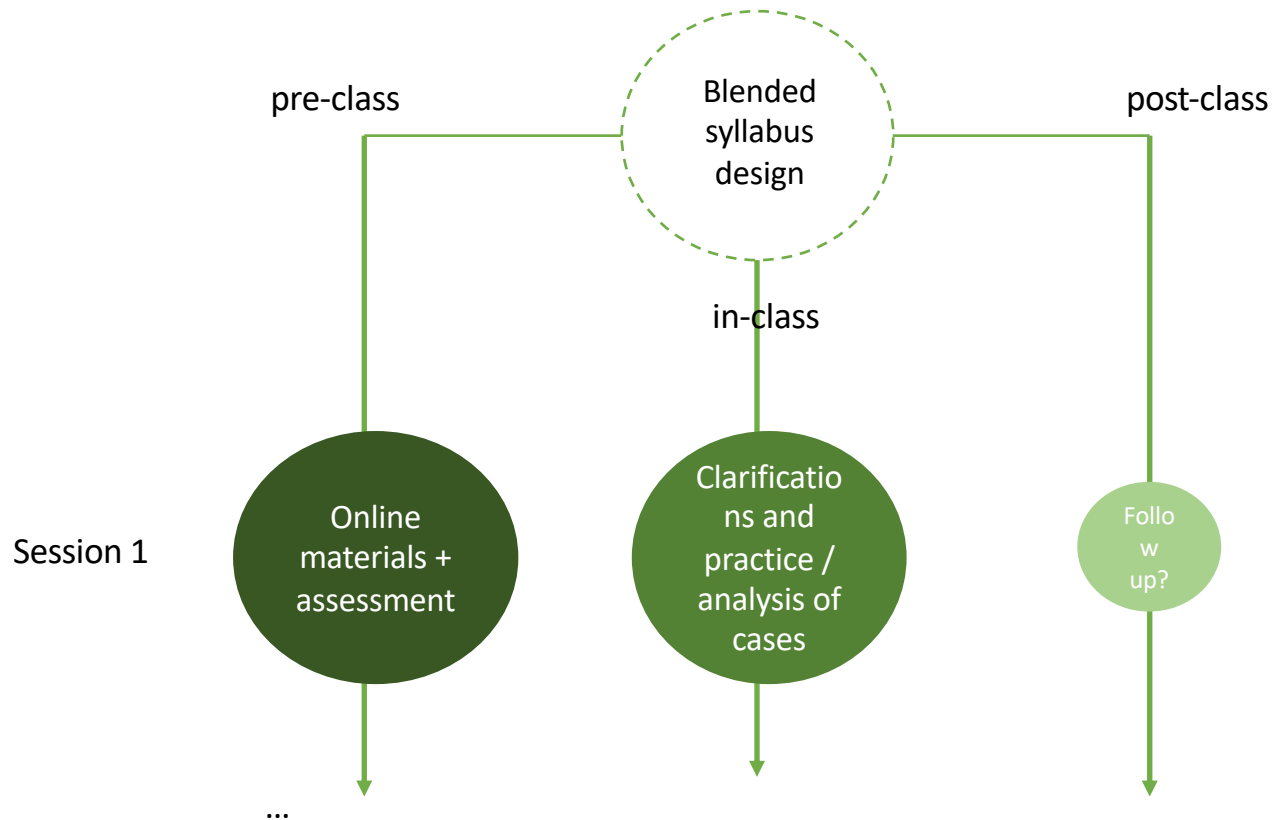
Flipped classroom blended class example

Pre Assignment	<ul style="list-style-type: none">Watch at two sets of videos about 2 different BM concepts	10% of total effort
Tutorial	<ul style="list-style-type: none">Assess how students internalized the learning from videosApplying immediately the learning on their projects	40% of total effort
Post Assignment	<ul style="list-style-type: none">Refine their BM on their Business Idea	50% of total effort

BM = Business Modeling

Courses Blending Models

Approach based on full online course



Requires less work to setup as approach, but requires syllabus changes and follow up of contents in class

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Courses Blending Models

Example of full online course

	#1 INTRO	#5 BMC	#6 FINANCE
Pre-class	<p>T + assignment</p> <p>P</p>	<p>T + quiz</p>	<p>T + quiz</p> <p>P*</p>
In-class	<p>Clarifications (T)</p> <p>P (Examples + debate*, Presentations + discussions)</p>	<p>Clarifications (T)</p> <p>P (Group work)</p>	<p>T (lecture)</p> <p>P (example + discussions)</p>
Post-class	<p>T</p>		<p><i>*3rd party materials</i></p>

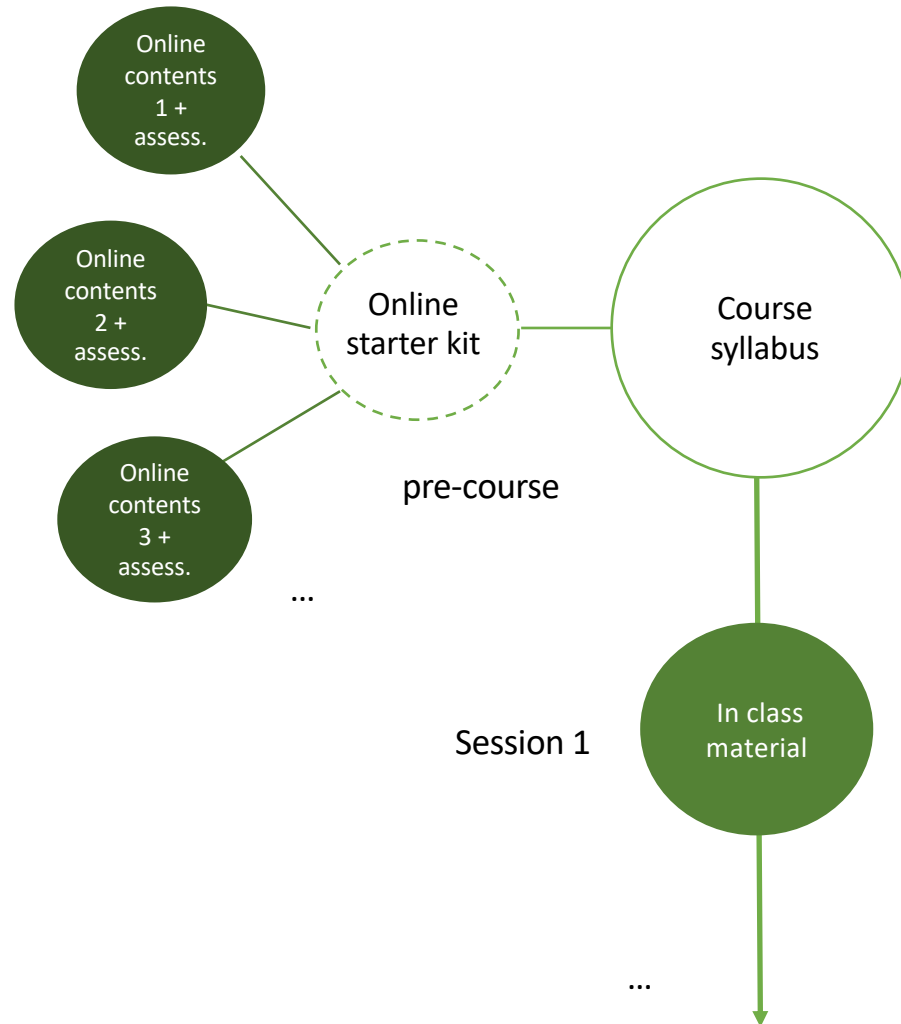
Rationale:

BMC: business model
canvas

T: Theory
P: Practice

Courses Blending Models

Approach based on online starter kit



Requires no work from teachers (the packages are centrally prepared) and does not require syllabus changes

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Courses Blending Models

Summer school online starter kit



Students refresh their knowledge (or learn) independently I&E concepts with pre-packaged sessions on 5 modules (approx. 8h of student time). It is composed of the following themes:

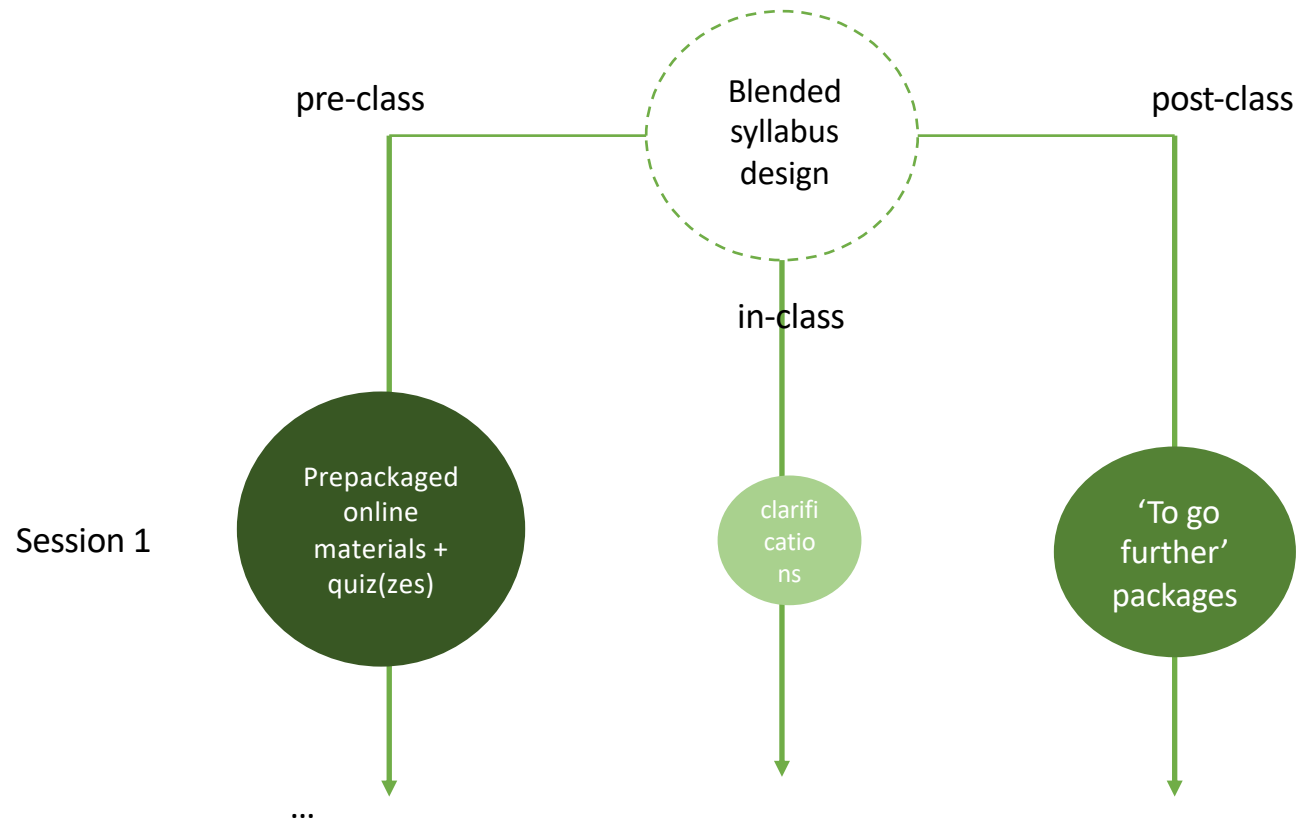
- Introduction to assessing the impact of ICT technology (theory and models)
- Business Modelling / Business Model Canvas (process of Business Model Generation, building blocks of the BMC)
- Entrepreneurial Finance (Introduction, cash flow statement, balance sheet)
- Marketing in Technology Ventures (Introduction to customer-oriented marketing thinking & doing, creating, communicating & delivering customer value)
- Introduction to pitching (with examples)

After each module there is a quiz each composed of 10 questions. Students pass the quiz if they score 6 out of 10. They can take the quiz up to 5 times. The results are released only after the deadline.



Courses Blending Models

Approach based on independent learning



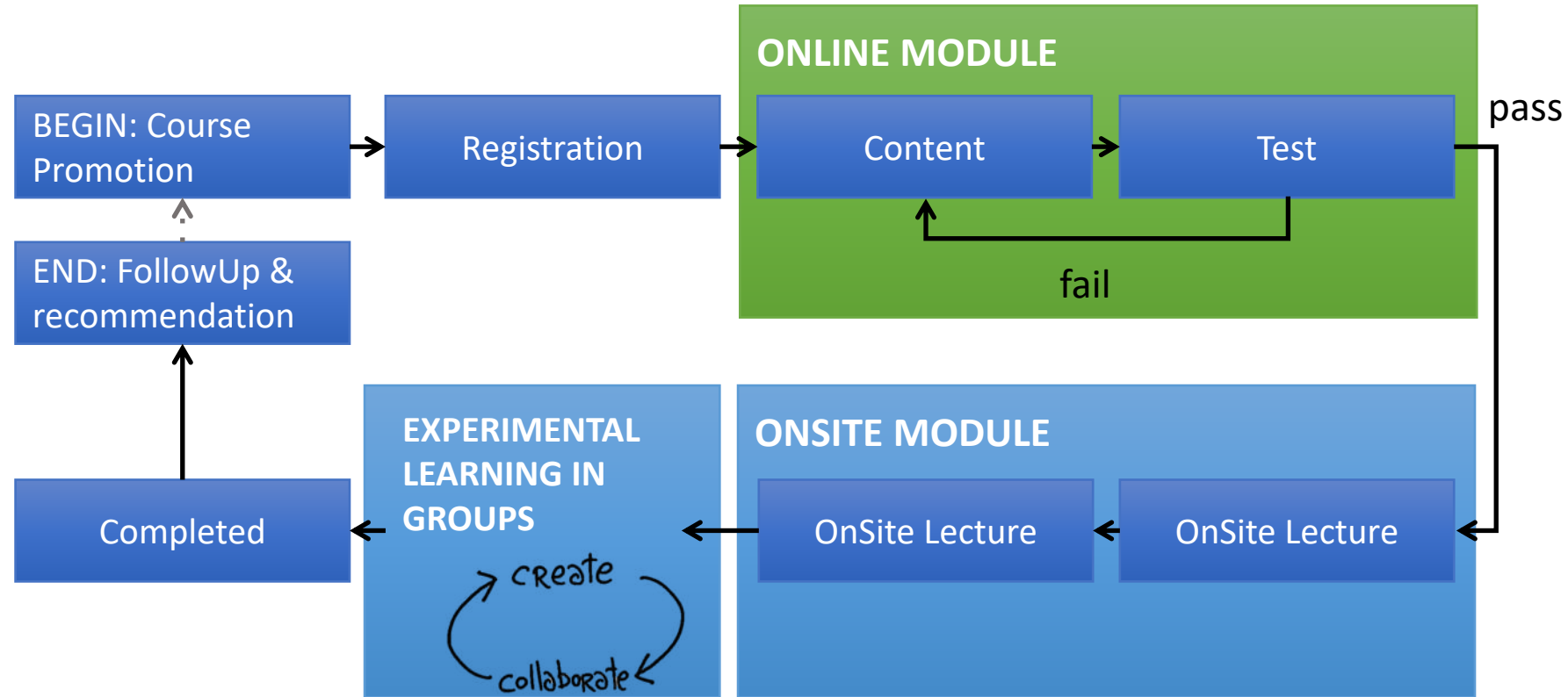
Requires work to setup as approach (teachers helped in this), but does not require syllabus changes or to follow up of contents in class

the circle size indicates amount of workload

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Courses Blending Models

Example of independent learning class

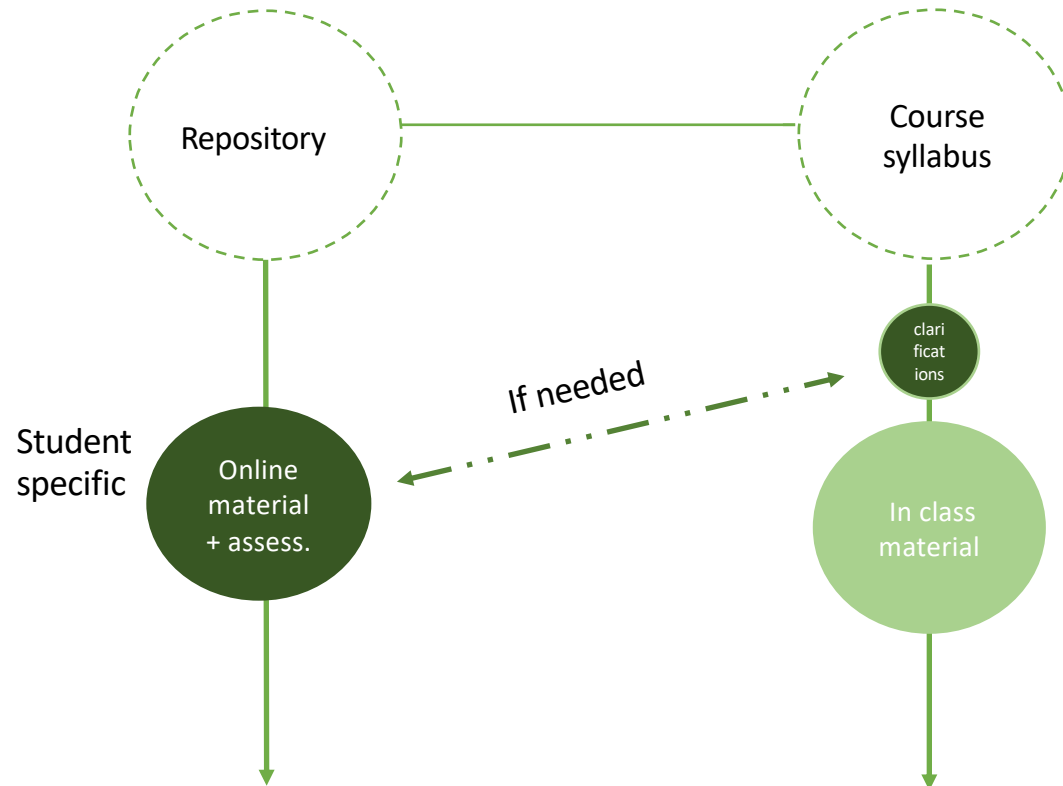


Teachers are working as mentors & coaches

Industry experts' first hand experiences.

Courses Blending Models

Approach based on online repository



Requires work to setup as approach (teachers helped with this), but does not require syllabus changes or to follow up of contents in class

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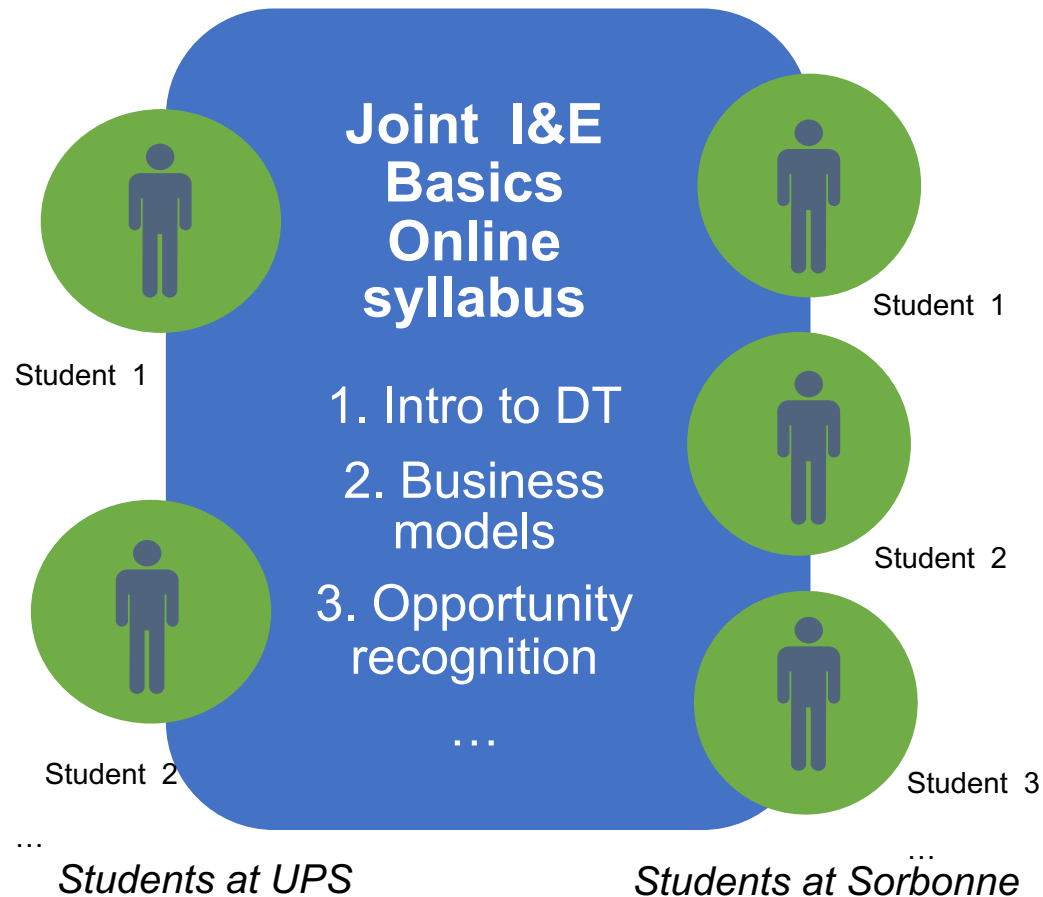
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Example

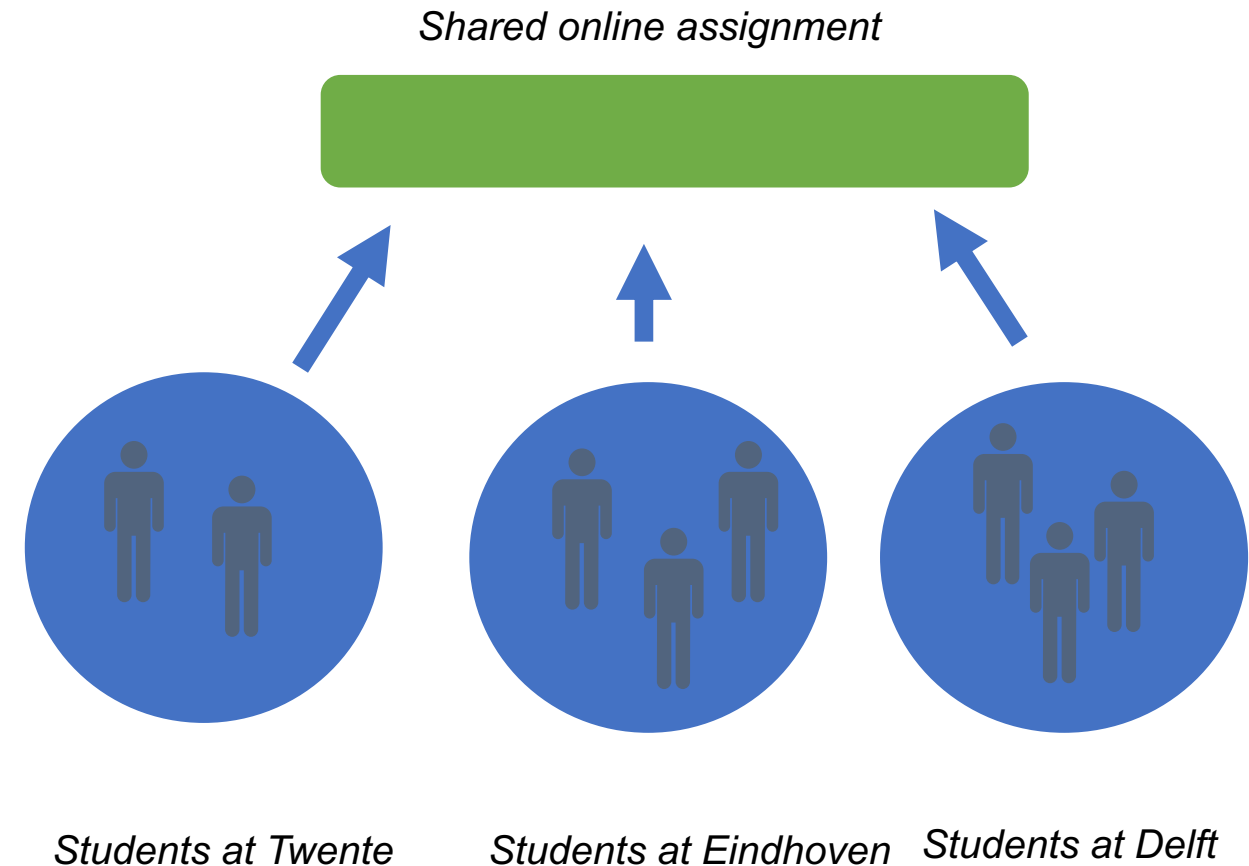
Teachers invite the students to watch the materials of selected sessions, or they point to the students single sessions in the blueprints (a full online syllabus composed only of online contents) that can be relevant for the specific needs of the student in question.

CROSS-UNIVERSITY COLLABORATIONS

*Sorbonne – UPS
collaboration on a course*

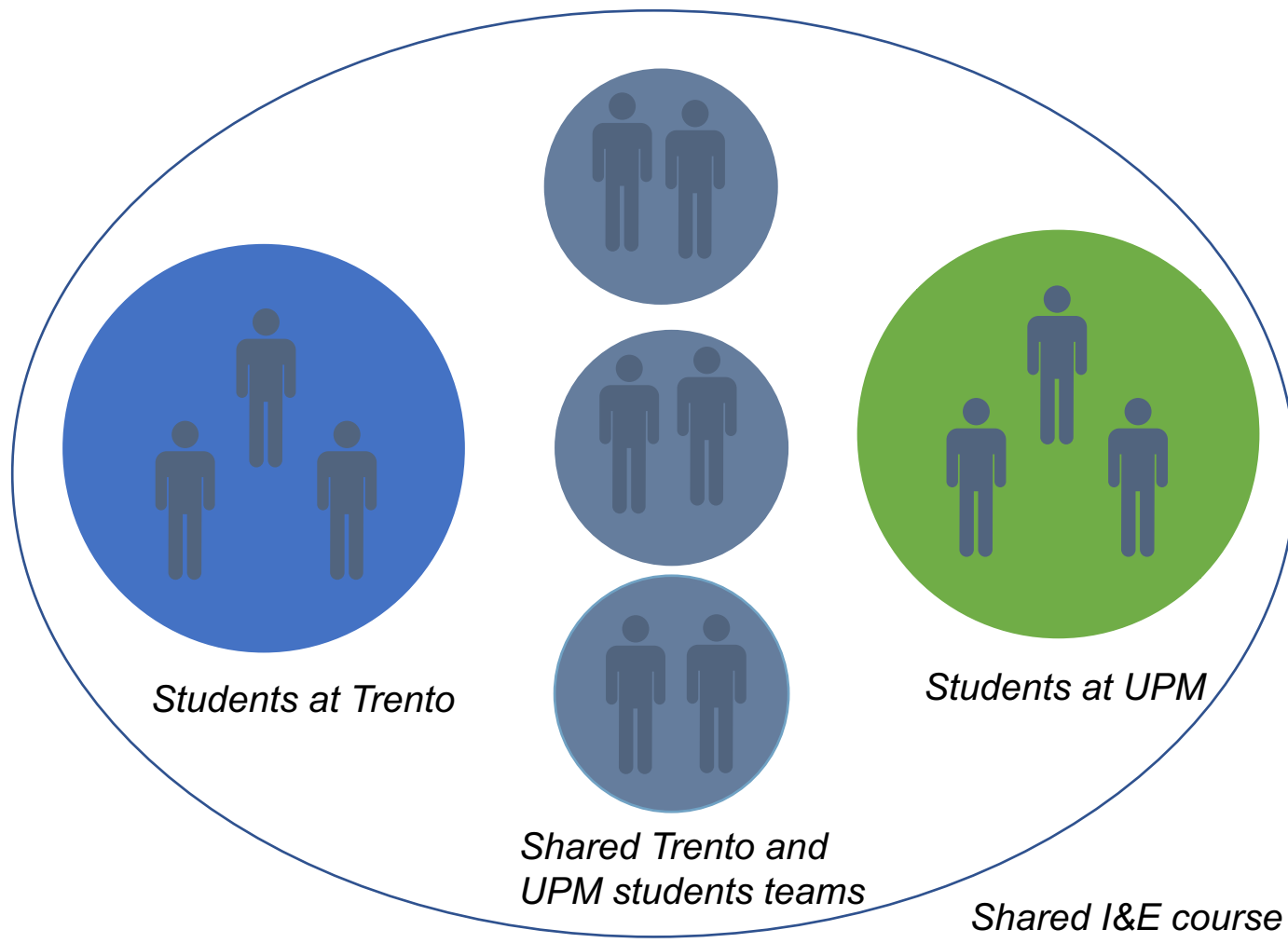


*Tu Twente, Tu Eindhoven
and Tu Delft collaboration*

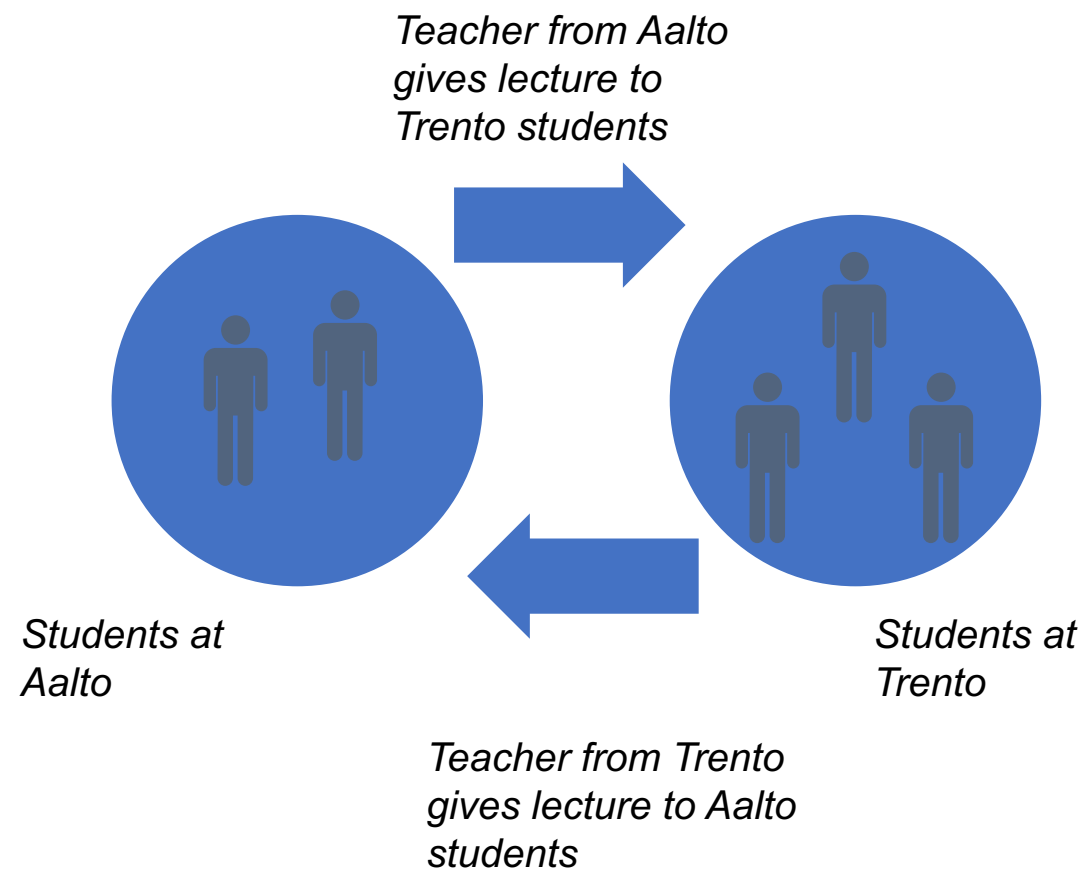


CROSS-UNIVERSITY COLLABORATIONS

UNITN and UPM collaboration



UNITN and Aalto collaboration



Discussion: cross-university collaborations, shared teams

- Problem of scheduling the times when to talk, i.e. to find time slots that work for students present at two different locations
- Common problem reported were or from technological nature, problems with having adequate internet connection to do the calls
- The students in general appreciate the collaboration between each other and say that it promoted better knowledge and practice exchange between the involved students,
- The collaboration provided benefit for the students on the development of their skill to work in distributed and physically colleagues.
- The collaborations were insightful for the effect of learning in distributed groups



Conclusions and perspectives

- Here, I present modelling approach we took to blend our education: different models working better for different situations, starter kits working better for courses with project work, independent levelling-up and online repository being more relevant for universities with higher legacy in I&E education, and flipped classroom and full online course working better for universities recently hoping on the initiative
- We have reported on the endeavor undertaken by the EIT Digital to set and implement blended learning within its I&E group, this case study contributes to the analysis of how blended learning can be diffused and adopted widely within networks of universities and suggested ways to integrate blended learning in higher education institutions, by creating the conditions for cross-university pedagogical collaboration with real impact on teaching



Questions?

Thank you!

