



Faculté des Lettres,
des Sciences Humaines, des Arts,
et des Sciences de l'Éducation

Moving beyond the Lecture: Towards Collaborative Inquiry-Based Learning with Big Questions

Case Study

**13th November 2018 - #EAPRIL2018, Portorož,
Slovenia**

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Institute of Applied Educational Sciences

Research Unit on Education, Culture, Cognition and Society



Luxembourg



Area

- Total 2,586.4 km²
(168th)
998 sq mi
- Water (%) 0.60%

Population

- April 2015 estimate 562,958^[1]
(170th)
- 2001 census 439,539
- Density 194.1/km² (60th)
501.3/sq mi

GDP (PPP)

- Total 2016 estimate
\$58.234 billion^[2]
(94th)
- Per capita \$100,991^[2] (2nd)

GDP (nominal)

- Total 2016 estimate
\$60.176 billion^[2]
(71st)
- Per capita \$104,359^[2] (3rd)

<https://en.wikipedia.org/wiki/Luxembourg>

- With the creation of the University in 2003, the „**Bachelor en Sciences de l'Education (BScE)**“ has been launched only one year later and is designed to prepare students for the **teaching profession in fundamental schools** in Luxembourg at **all levels** (K-9 years) in **all content domains**
- Main objective: **reflective practitioner**
- The study programme runs over **4 years** (240 ECTS)
- 1 semester of **mobility** is **mandatory** at bachelor level
- **Variety of learning & teaching approaches** across the curriculum: lectures, seminars, workshops, projects, etc.

Bachelor in Educational Sciences

1 | Learning and development

2 | Teaching and schooling

3 | Researching in schools

4 | Language education

5 | Mathematics education

6 | Science education

7 | Physical education

8 | Aesthetics education

9 | Values education

10 | Internship & portfolio

Bachelor in Educational Sciences

1 Learning and development

2 **Teaching and schooling**

3 Researching in schools

4 Language education

5 Mathematics education

6 Science education

7 Physical education

8 Aesthetics education

9 Values education

10 Internship & portfolio

Courses in *Educational Technology*

- Semester 2: Education in the Digital Age - Seminar
- Semester 7: *Educational Technology* - Project
- 14 key activities in Internships
- Mathematics Education: training & manipulation tools
- Literacy Education: authoring tools
- Bachelor Thesis (if students choose to work on that topic)

- **Semester 2: Education in the Digital Age - Seminar**
- Semester 7: *Educational Technology* - Project
- 14 key activities in Internships
- Mathematics Education: training & manipulation tools
- Literacy Education: authoring tools
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Semester 2: *Education in the Digital Age*

Students should be able to

- define and discuss the implications of the digital revolution and the knowledge society on learning, teaching, educating and schooling;
- define and discuss the mutual relations between technological and socio-cultural evolutions;
- define and discuss national and international “digital education” policies, standards (21st century skills, media & information literacy, digital literacy), frameworks and strategies;
- define policies and initiatives of technology-enriched learning and teaching environments at a national and international level;
- define theories, models and strategies of technology-enriched learning and teaching environments;
- define methods and practices of technology-enriched learning and teaching environments;
- define educational technology tools and their instructional functions.

Educational Technology Objectives

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Semester 7: *Educational Technology*

Students should be able to

- analyse and evaluate different types of digital media and technologies regarding their didactic-methodical characteristics;
- evaluate different types of digital media and technologies regarding given learning objectives;
- plan & implement the use of digital media and technologies in a meaningful way;
- document and evaluate the use of digital media and technologies in a meaningful way with regard to teaching/learning processes and outcomes.

We had been teaching the first-year course on “education in the digital age” as a **lecture** for a few years.

The objectives of this course have been to convey **theoretical knowledge** to our future teacher students.

Students had to take a **written exam**, testing for **knowledge** and **understanding**.

This first-year course provided the “**theoretical foundations**” for a 4th year project-based course about **educational technology integration**.

However, we have observed, over the last years, that
(1) **many students failed to pass the exam** and
(2) that a lot of them, when in their 4th year, had **forgotten**
most of these **theoretical foundations** or did **not make the**
connection between the two courses.

We also felt that **lecturing students** about the need to rethink
education in the digital age was **not isomorphic**.

These considerations have driven us to **rethink & redesign**
our **teaching approach** and **how we assess** students
learning outcomes.

Our pedagogical approach **combines various learning & teaching methods** that require students to **actively and collaboratively construct meaningful knowledge** and **share it in a community of learners**.

They are given “**big questions**” (i.e. questions where there are no simple and easy-to-lookup answers) and are instructed to **develop meaningful answers, based on resources** that (1) we have **curated** for them (2) and / or resources they have **looked up** themselves.









These answers are **shared with their colleagues** (and us) in an **online forum** and **discussed in class**.

Big Question - Some examples:

- In how far did and does the Digital Revolution change our relationship to knowledge?
- What does “digital revolution” means in terms of technical, cultural and social aspects?
- What is the impact of the “digital revolution” on education?
- What do Koehler and Mishra mean when they say that teachers in the 21st century need to be designers of technology, pedagogy and content?
- What should schools of the future look like?
- Why do we need to rethink education before designing schools for the digital age?
- What does Michel Serres by saying that a change in media (support) always implies deep transformations in the way we learn and think?
- In how far has the transition from the industrial age to the knowledge age changed the goals that education needs to (try to) reach?

Teaching Approach

Discussion

	Started by	Replies
Which Learning/Teaching Events can we implement with the help of social networks like Facebook? Please explain.	 Gilbert BUSANA	8
What is the difference between a technology integration strategy and a teaching model?	 Gilbert BUSANA	4
What is the TRIPLE E FRAMEWORK and what are its recommendations about integrating ICT into teaching?	 Gilbert BUSANA	19
Please explain the "Learning and Teaching Events" model by Leclercq & Poumay (2005).	 Gilbert BUSANA	5
Please explain how Roblyer & Doering define the two main technology integration strategies.	 Gilbert BUSANA	6
In how far is it useful to use the SAMR model (Puentedura) when integrating digital technologies into our teaching practices?	 Gilbert BUSANA	20
Please explain Bloom's "Taxonomy of Learning Objectives" and its relevance for technology integration practices.	 Gilbert BUSANA	18
What are the relationships between learning theories and teaching practices that integrate digital technologies?	 Gilbert BUSANA	7

We have tried to **guide their inquiry-learning process more at the beginning** (requiring them to read / watch learning material in advance to coming to the seminar) and **less at the end** of the semester (inviting them to search for relevant resources online themselves).

They have been **collecting “evidences” of their own learning** in terms of knowledge, understanding and application in their **individual (online) digital portfolio**.

Given that most of our students

(1) have **not** had **extensive experience with active pedagogy methods** before studying at the university and

(2) are **more used to dealing with “small questions”** or with **reproducing answers to questions** (both provided by their teachers),

they have been somewhat struggling with our approach.

However, since we have partially used **questions** that we **previously used as exam questions**, we have observed that their answers have **largely** been **much better** than those developed by their predecessors.

We see that many students **deeply engage** with the proposed content and **try to understand** it and **make sense** of it.

Moreover, we have been **struggling with the online digital portfolio tool** we have chosen.

These technical issues have made the portfolio work **not very user-friendly** and **fun for our students** and also did not really allow us to have **meaningful online conversations** with them.

Given our more or less **guided inquiry-learning approach** combined with the fact that students **share their productions online** with the rest of the community of learners,

- (1) we have had quite **good insights into their learning processes** and
- (2) we were **able to provide corrective feedback** when necessary.

Learning is much more visible in our current approach **than it was in the lecture hall**, where it only becomes visible when grading the final written exams, when it is too late to scaffold students learning processes.

Overall, we are **quite satisfied with our teaching approach**

BUT will have to

(1) **improve our formative assessment** practices and

(2) set up a **digital portfolio solution** that is **more reliable** and leads to **greater user satisfaction**.

THANK YOU FOR YOUR ATTENTION!

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