"DIGITAL TECHNOLOGIES AND THE FUTURE ARCHITECTURE FOR EDUCATIONAL INSTITUTIONS"

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Trail lecture

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A SMS THREAD TO GET STARTED

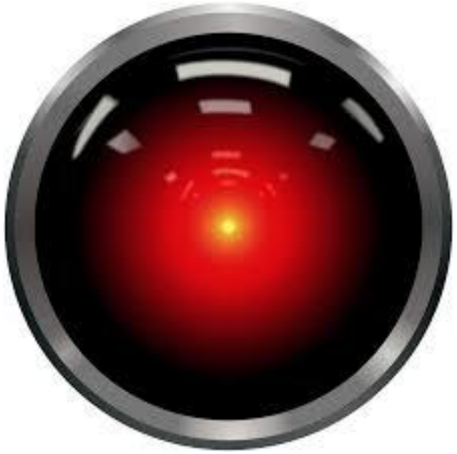
Yeah right! «Digital technologies and the future architecture for educational institutions". Means that I'm gonna talk about the future education system… any ideas?

Virtual reality! The professor is somewhere random and lectures. Assignments are created in your thoughts and after that stored and downloaded to computer clouds which are later graded by Artificial Intelligence. Drones hoover over you and grab students who got dangerous thoughts or otherwise are a risk to the «almightybrain». Something like that..

Mighty GoD! Really authoritarian and dystopian! Jesus! But I think that the idea with the professor is a bit redundant. Artificial intelligence gets the job done. You know, HAL901 knows the way out.…

Yeah! I agree, we don't need the professor. But you asked for ideas and I gave you some :)

THE FUTURE EDUCATION SYSTEM?



Artificial Intelligence

Drone Dog Catcher

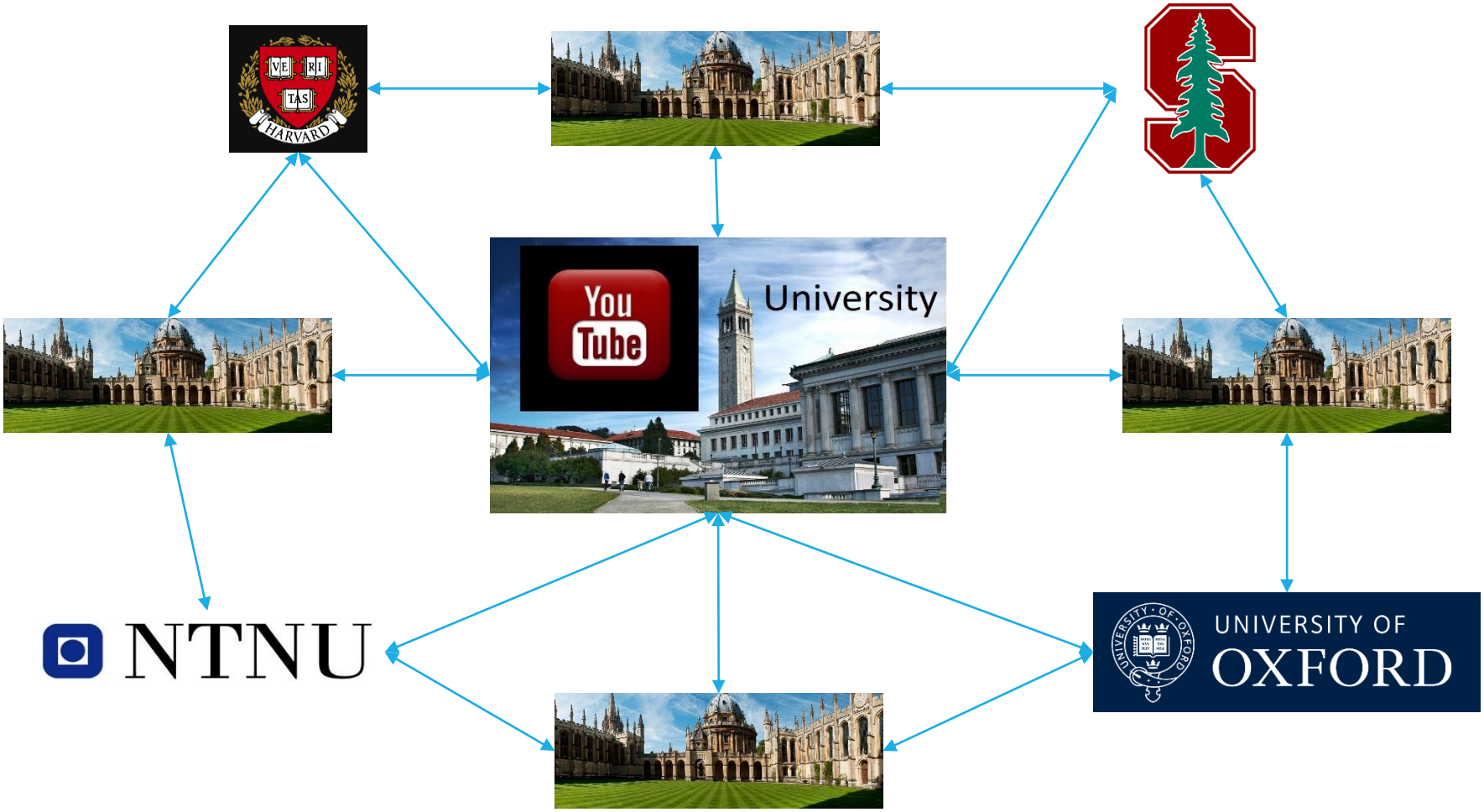
The Cloud

WHY THIS STORY?

A challenge in our education system

- Disengaged students

WHY NOT ONE YOUTUBE FOR ALL UNIVERSITIES?



THE QUESTION TO BE DISCUSSED

How can we use current digital technologies to create new inspiring educational designs? Moreover, what role can such designs play in shaping the future architecture for educational institutions and contribute to address the challenges I just mentioned?

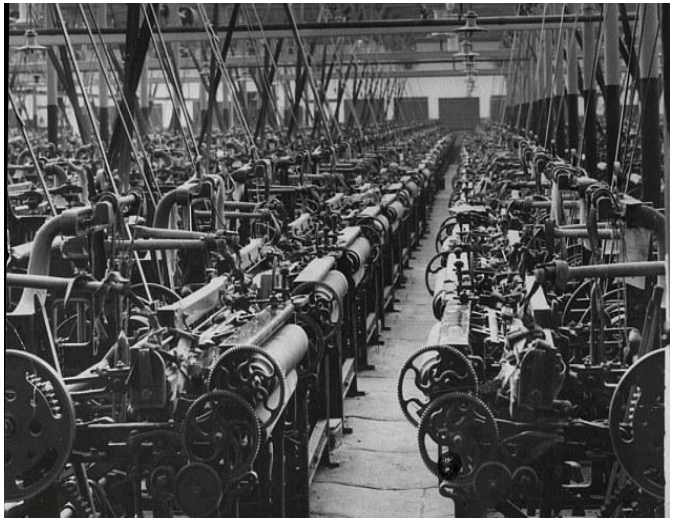
THE STRUCTURE OF TALK

- Part 1: Educational practice before the dawn of the digital age
- Part 2: Current challenges in education systems
- Part 3: The future architecture for educational institutions
  - ✓ A suggestion: Learning Object Repository or L.O.R

The Past The Present The Future

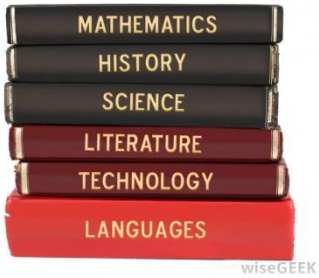
PART I

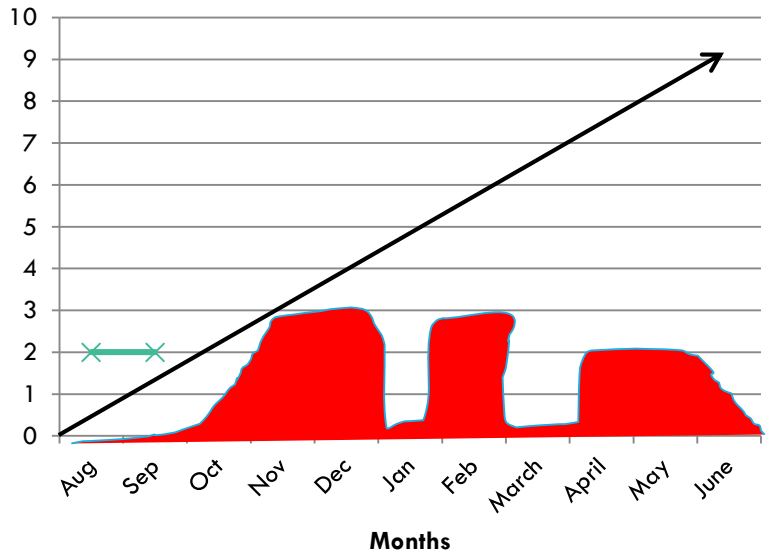
EDUCATION PART OF LARGER CONTEXT



WHAT CHARACTERIZED LEARNING BEFORE THE DIGITAL AGE?

Linearity and stability





EDUCATIONAL PRACTICE AND ARCHITECTURE IN THE 1700S

EDUCATIONAL PRACTICE AND ARCHITECTURE IN THE 1800S

EDUCATIONAL PRACTICE AND ARCHITECTURE IN THE 1900S

EDUCATIONAL PRACTICE AND ARCHITECTURE IN THE 2000S

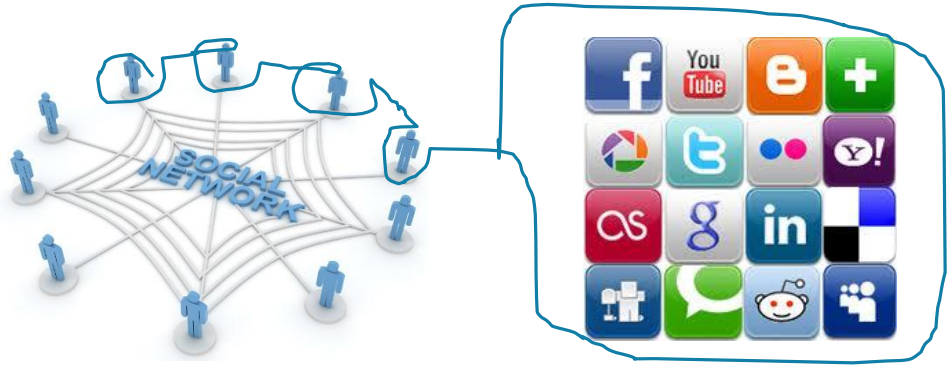
WHAT CHANGES CAN WE OBSERVE, IF ANY?

- Dominant educational practice
  - The dialogue educator and learner
  - The classroom changes little
- But what are the changes?
  - Improvement in educational architecture
  - For example; new school buildings, better blackboards, chairs, etc.
  - Computers enter classroom environment
- Other changes?
  - Photography technology => paintings, black/white images, color images, digital
  - And obviously => clothing changes and adopt to contemporary fashion

PART II

THE DAWN OF THE DIGITAL AGE

"new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture" (Castells 1996:500)



«The duality of technology» (Orlikowski 1992)

THE DIGITAL CHALLENGE IN EDUCATION

- Use of ICT in the Norwegian K-12 system in 2013
  - ITU Monitor survey:
    - Junior high school student; 40 percent only use a computer between 1 to 3 h a week
    - High school students; 40 percent use computer only 10 h a week

    (Hatlevik et al., 2013).

- International Computer and Information Literacy Study (ICILS)
  - ¼ of the Norwegian students lack essential knowledge and skills to interact in a digitized everyday

    (Hatlevik O.E. & Berge, O., 2016)

- Use in the Norwegian higher education
  - 90 per cent of faculties use big lectures
  - Use of digital technologies in teaching determined by early adopters

    (Norgesuniversitetet 2015)

- The term "Digital Natives" challenged
  - Use of Facebook has negative outcome on academic performance among university students

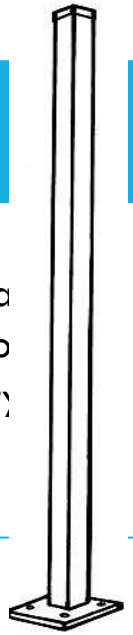
    (Kirschner & Karpinski, 2010, Junco and Cotten, 2012; Junco, 2012, Rosen et al., 2013)

TENTATIVE REFLECTIONS

- Only solid use of digital technologies in high school level
  - Not 1-12 level or in higher education
  - Why in the middle-part of a long educational path?
  - Students start using digital technologies to for educational practice after 12 years in school?
  - Production and reproduction of digital divides (Vie 2008)
- Students are perhaps
  - Socialized to accept a text-book tradition, classroom setting, blackboard
  - Master the academic written culture to succeed
  - Digital technologies seen as a type of accessory?
  - Different expectations and technological framings towards the digital?

COMPARTMENTALIZATION OF LEARNING PROCESSES AND DIGITAL TECHNOLOGIES

Formal learning	Informal learning
• Learning is intended and organized trained teachers in a systema intentional way within a scho academy, college, institute or universit • Organized around curriculums	Flexible No set objective in terms of learning outcomes No curriculums Learning by participation



Compartmentalization: to separate (something) into sections or categories: to separate (two or more things) from each other: to put (something) in a place that is separate from other things (Merriam-Webster 2016)

ENGAGED WHERE?

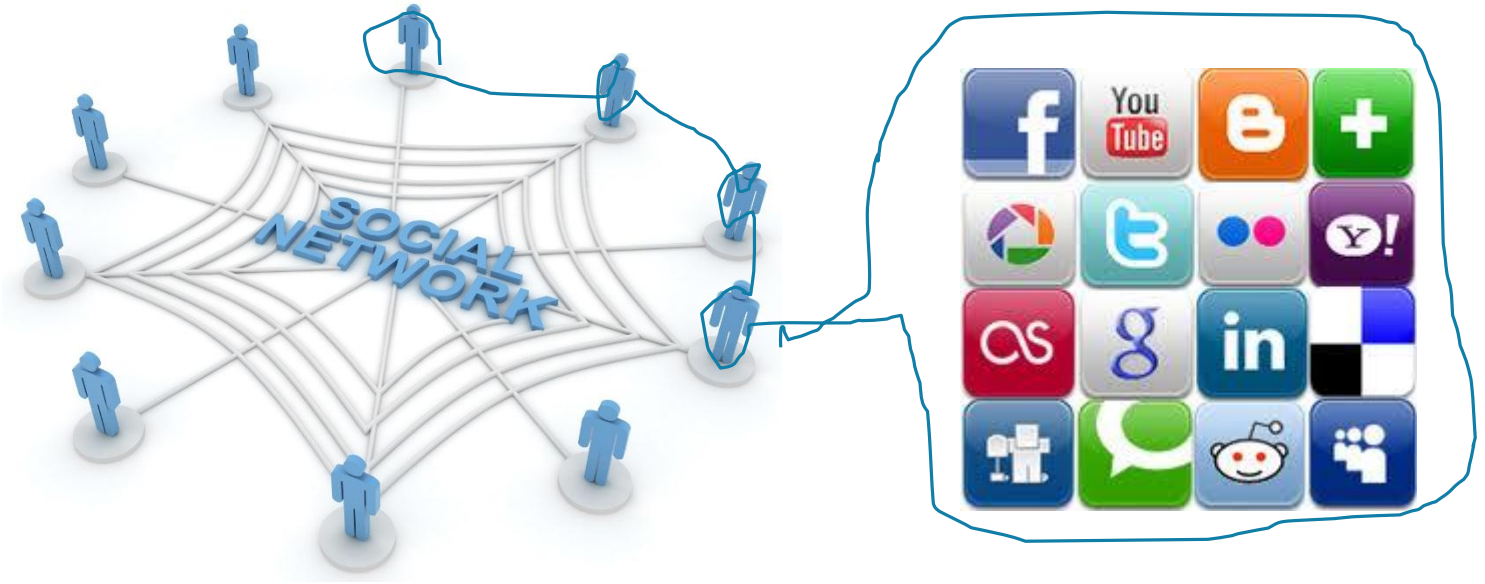
Linearity and stability

Formal learning

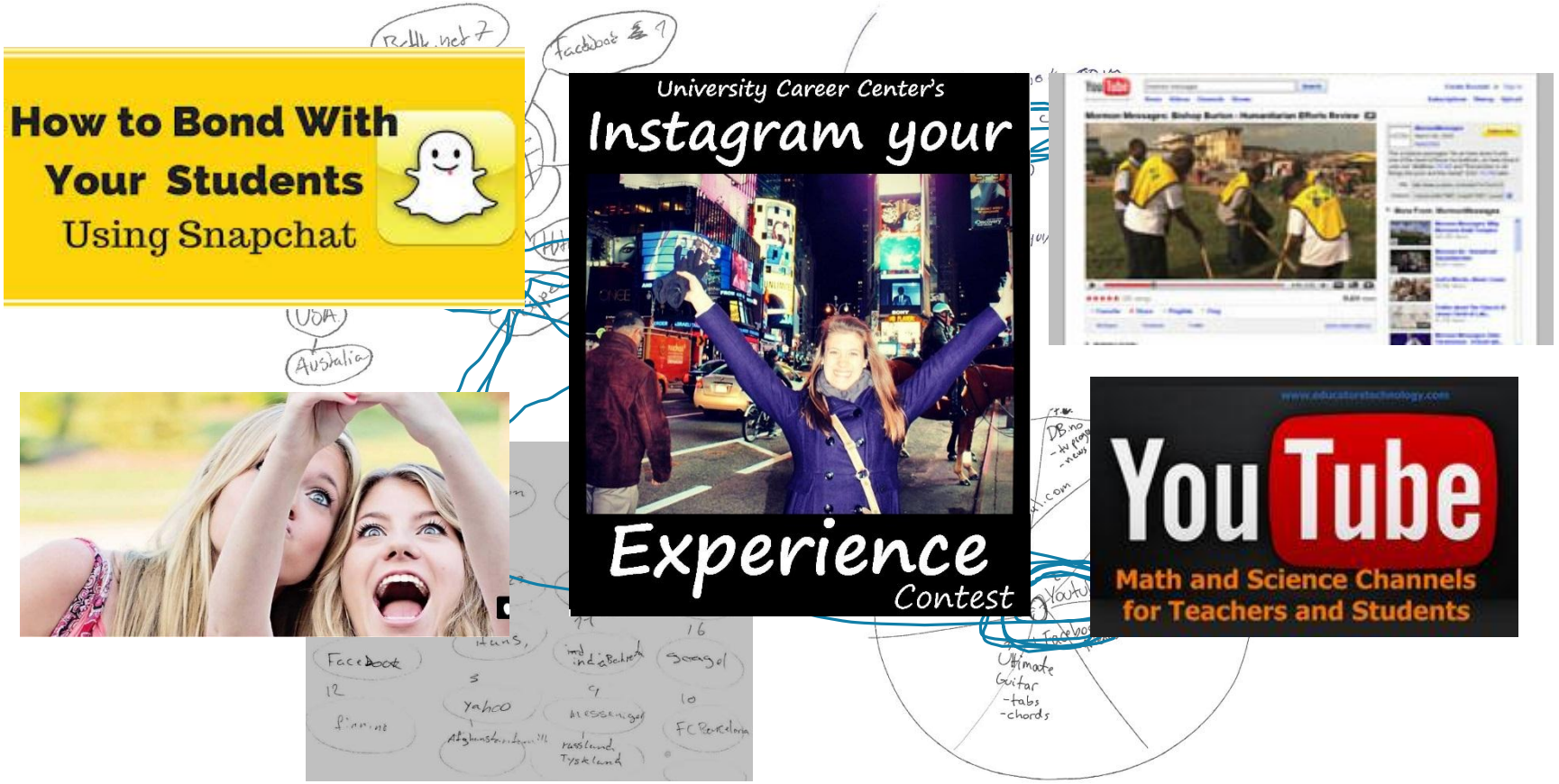
Dynamic Interactive participating

InFormal learning

HERE, OF COURSE!



THE DIGITAL COGNITIVE EGO OF STUDENTS

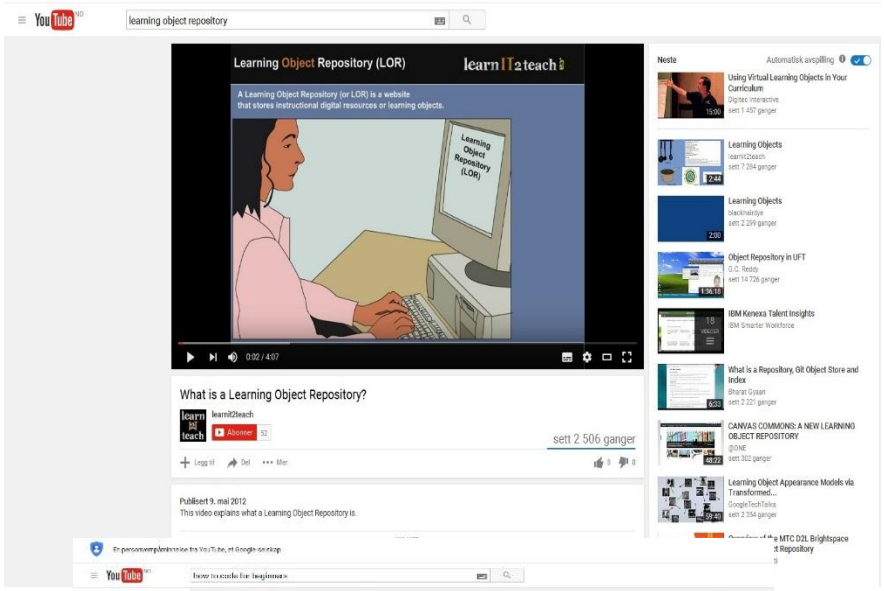


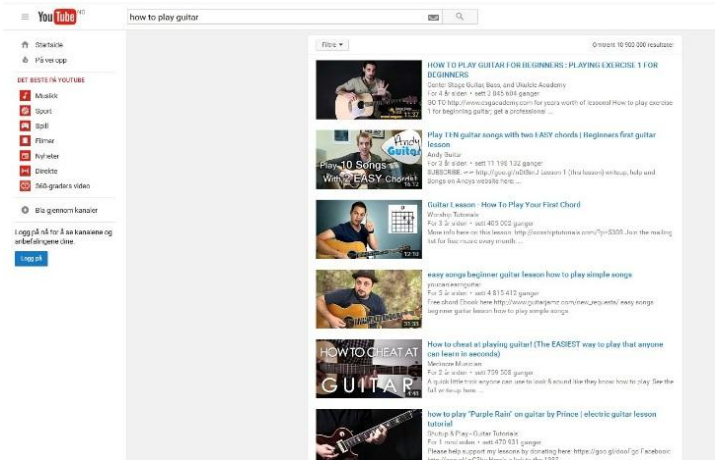
(Haugsbakken 2014, Haugsbakken & Langseth 2014)

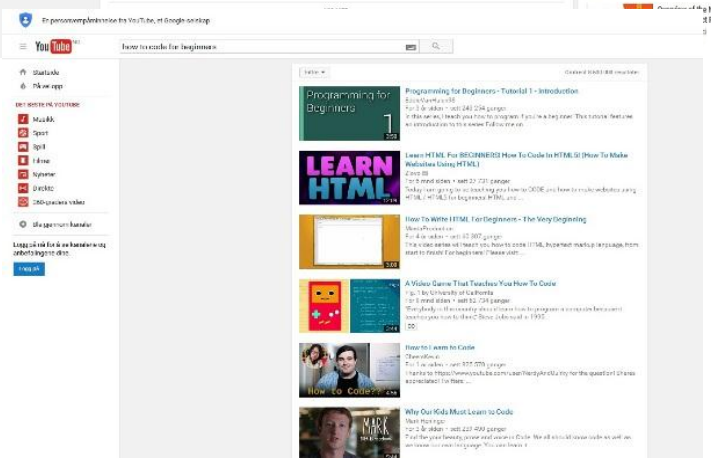
PART III

WHAT DO WE ASSOCIATE WITH LEARNING OBJECT REPOSITORY?

- YouTube
  - Full of videos and comments made by individuals or organizations
  - Sub-community of tutorials
  - Explore many various themes
  - Ex: Music and use of software
  - Peer-to-peer exchange of experiences



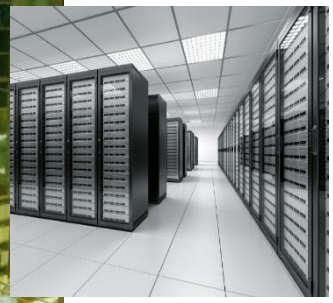




WHAT IS A LEARNING OBJECT REPOSITORY?

Learning object: type of digital content component that allows flexibility, independence and reuse of content in order to deliver a high degree of control to instructors and students (Wiely 2002).

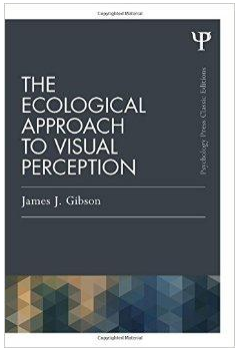
A Learning Object Repository, often called (LOR) is a collection of open shared digital resources that are accessible on the network without requiring prior knowledge of the internal structure of that collection (Zapata et al. 2013).



A digital library

THE AFFORDANCE OF TECHNOLOGY

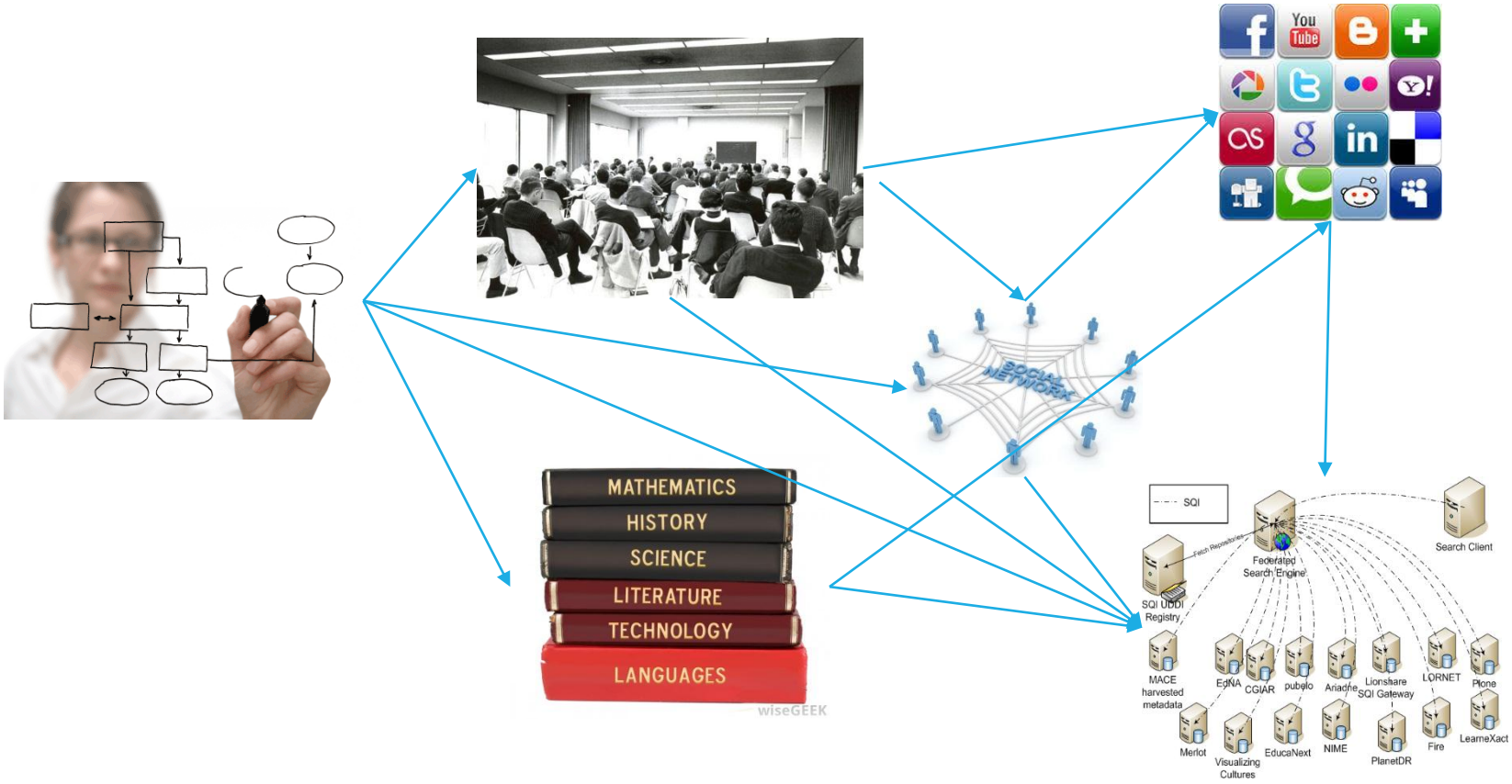
Gibson (1986) objects could be used in various ways and be perceived as *beneficial* to perform particular activities without paying attention to what an object "is". Here, individuals do not perceive what the object "is" but what it can afford. The perception of an object's utility called an *affordance*.



Sitting

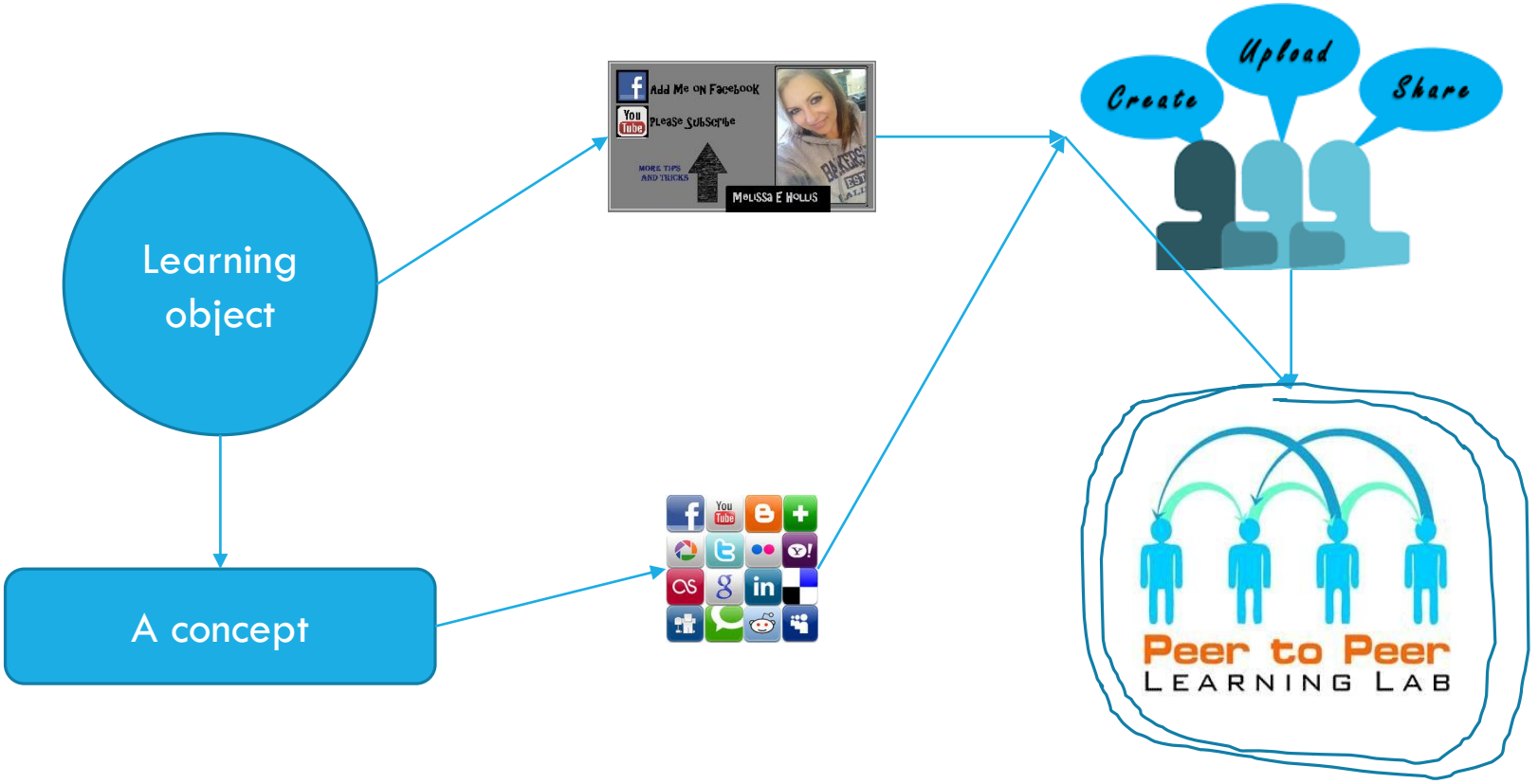
Kicking

AFFORDANCE 1: REDESIGNING LEARNING PROCESSES



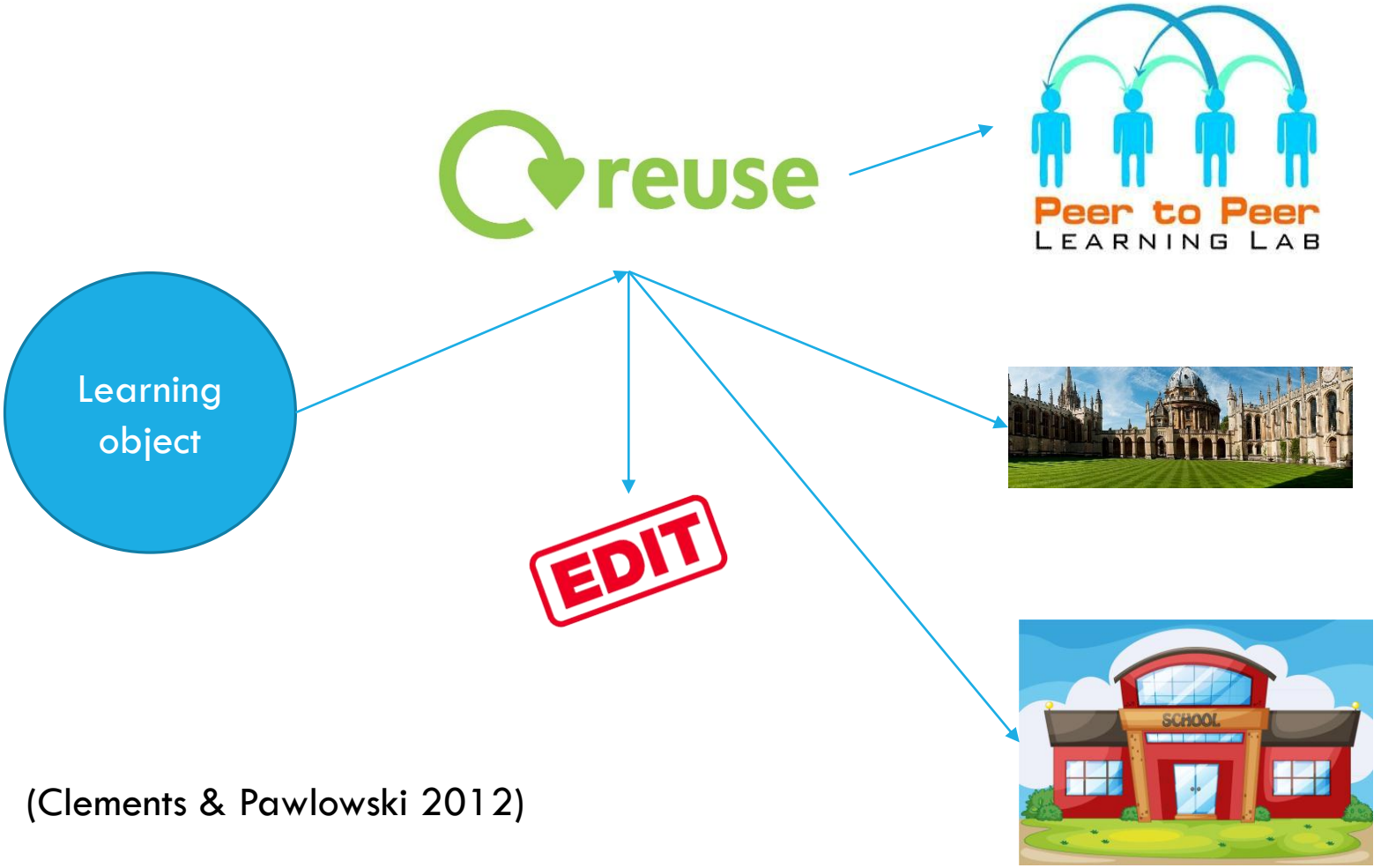
(Frank Cervone 2012, Elfaki, Duan, Fong, Johar, & Du 2013)

AFFORDANCE 2: CREATION AND SHARING



(Neven & Duval 2002)

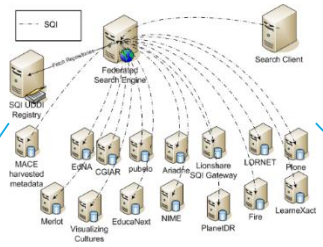
AFFORDANCE 3: REUSABILITY AND FLEXIBILITY



(Clements & Pawlowski 2012)

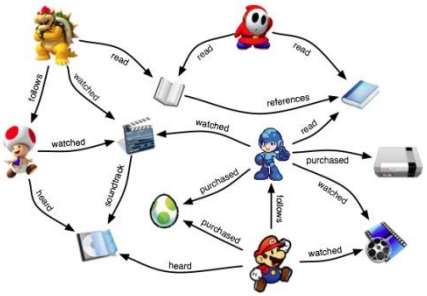
AFFORDANCE 4: CUSTOMIZATION

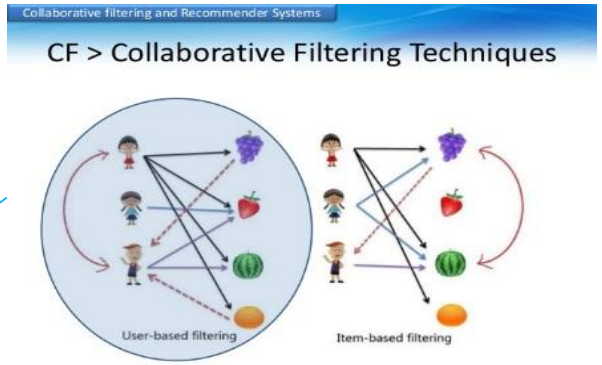
Learning object

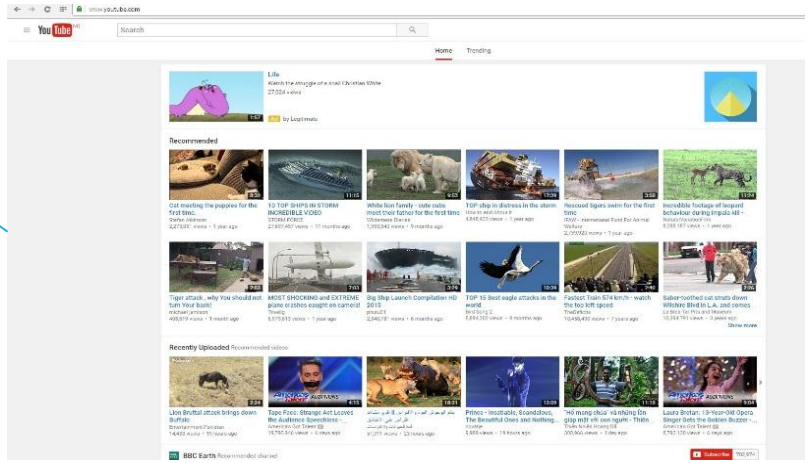


(Castillo, Morales, González-Ferrer, Fdez-Olivares, Borrajo, & Onaindía 2010; Carmona, Castillo, & Millán, 2008)

AFFORDANCE 5: RECOMMENDATION

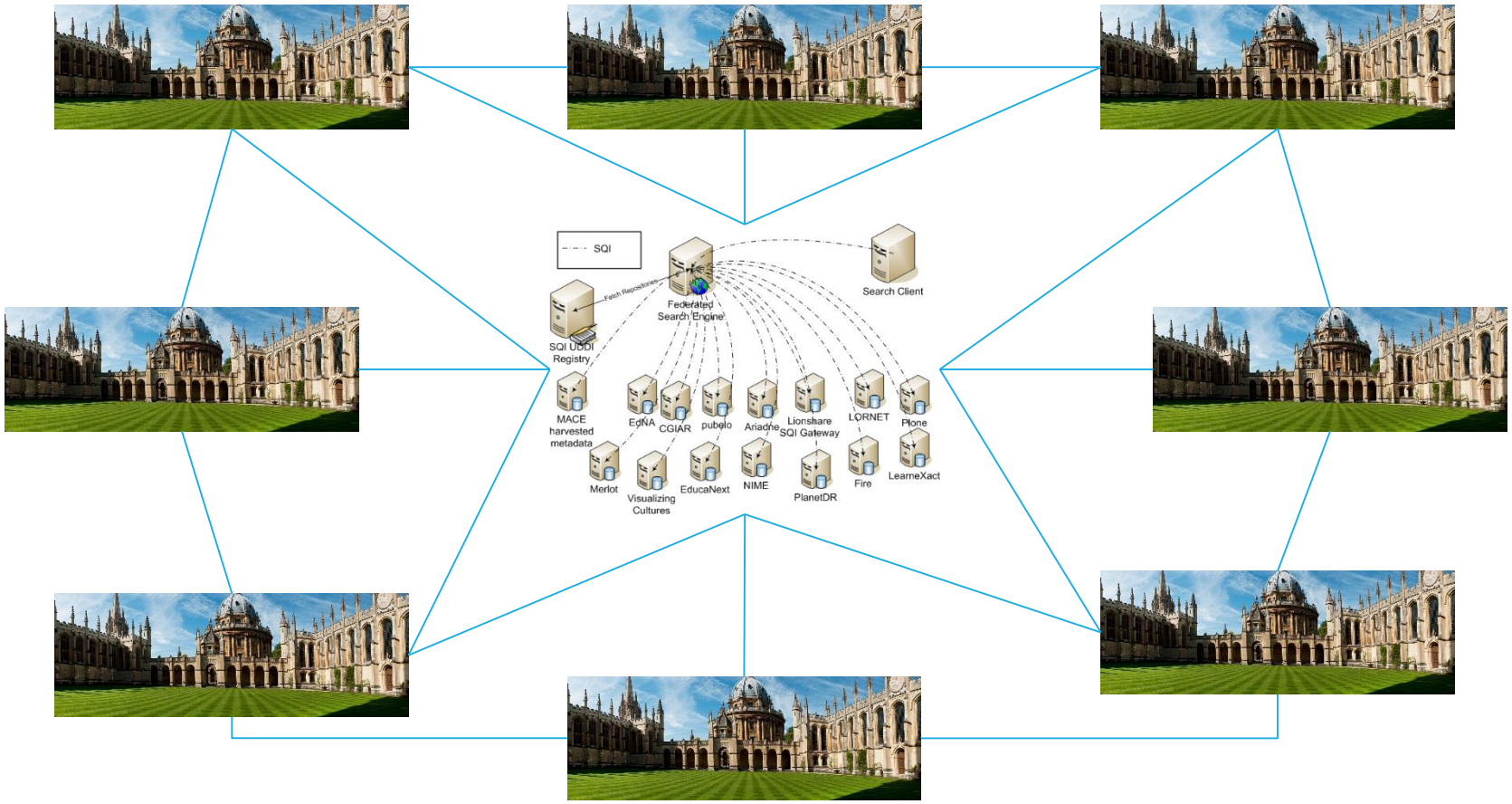






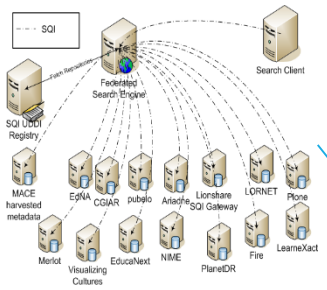
(Zapata, Menéndez, Prieto, & Romero, C. 2013)

AFFORDANCE 6: DISTRIBUTION



(Tolba, Atwan, & Atta, 2009; De Santiago & Raabe, 2010; De la Prieta, Bajo, Marín, & Méndez, 2013)

AFFORDANCE 7: COM. OF PRACTICE

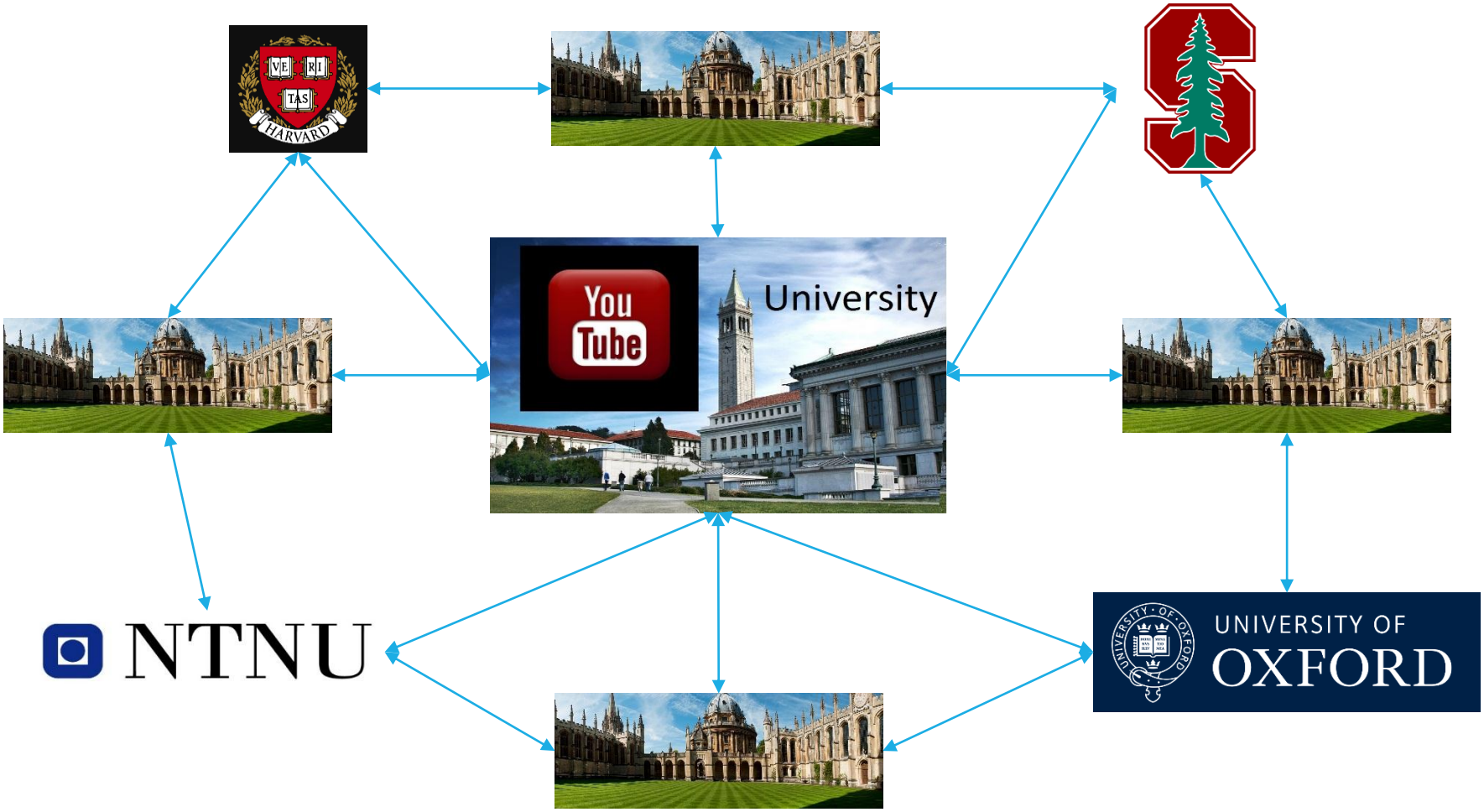


Learning object

Peer to Peer LEARNING LAB

(Wenger 1998)

TO CONCLUDE



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