Hacking education: Exploring informal learning currencies

A hacker is one who enjoys the intellectual challenge of creatively overcome the limitations of (programming) systems in a spirit of exploration.

@cristobalcobo
We tend to think in *tomorrow* as photocopy of yesterday
The social platform for learning is **changing**

information and knowledge

education and learning

technology and innovation

are not the same

evaluating and validating
If education might not be changing quickly but the learning landscape is evolving significantly.

Learning is ubiquitous - education is about cultural transmission of values.

Education vs Learning
learning to be
Learning to do
the network is the learning

learning to be

learning to know

learning to do
Real changes are in 360°

Innovative pedagogical practices:

1. Emotional intelligence
2. Cross- and trans-disciplinary
3. Open Educational Resources
4. Meaningful activities
5. Engaging assessment formats
6. Formative assessment
7. Recognition of informal & non-formal learning
8. Learning by exploring
9. Learning by creating
10. Learning by playing
11. Self-regulated learning
12. Personalized learning
13. Peer-to-peer collaboration
14. Soft skills
15. Individual strengths
16. Multiple learning styles
17. Multiple modes of thinking

Leadership & Values:

- Innovation management / 23
- (Social) entrepreneurship / 22
- Social inclusion & equity / 21
- Networking with real-world / 26
- Social networks / 25
- Learning events / 24

ICT infrastructure / 28
Physical space / 27

Content & Curricula:

- Monitoring quality / 20
- Innovative timetables / 19
- Innovating services / 18
- Connectedness / 26
- Leadership & Values / 23

Assessment:

- 14 / Soft skills
- 15 / Individual strengths
- 16 / Multiple learning styles
- 17 / Multiple modes of thinking
Skills and competences

The soft skills have become the hard skills
According to a study from Oxford University, **47% of occupations are at risk of being automated** in the next few decades.

![Graph showing the evolution of employment in occupational groups defined by level of education](http://www.economist.com/news/leaders/21605906-cost-crisis-changing-labour-markets-and-new-technology-will-turn-old-institution-its)
Our societies need creative individuals, entrepreneurs, critics, experts in the digital world who have excellent social skills and are able to adapt to different work environments.
Creativity

In the Classroom

Everybody Should Be An Artist

Inspired by Picasso

Mr. Garrido

"Learning Creative Learning"

learn.media.mit.edu
there's no **creation** without making (a few) **mistakes**

Can we incorporate the "mistake" in the **evaluation**?

A cool planning tool for making your
  ideas (prototyping).

[Creative Learning](http://learn.media.mit.edu)
<table>
<thead>
<tr>
<th></th>
<th>Very Creative</th>
<th>Creative</th>
<th>Ordinary/Routine</th>
<th>Imitative</th>
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<tbody>
<tr>
<td>Variety of ideas and contexts</td>
<td>Ideas represent a startling variety of important concepts from different contexts or disciplines.</td>
<td>Ideas represent important concepts from different contexts or disciplines.</td>
<td>Ideas represent important concepts from the same or similar contexts or disciplines.</td>
<td>Ideas do not represent important concepts.</td>
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<td>Variety of sources</td>
<td>Created product draws on a wide variety of sources, including different texts, media, resource persons, or personal experiences.</td>
<td>Created product draws on a variety of sources, including different texts, media, resource persons, or personal experiences.</td>
<td>Created product draws on a limited set of sources and media.</td>
<td>Created product draws on only one source or on sources that are not trustworthy or appropriate.</td>
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<td>Combining ideas</td>
<td>Ideas are combined in original and surprising ways to solve a problem, address an issue, or make something new.</td>
<td>Ideas are combined in original ways to solve a problem, address an issue, or make something new.</td>
<td>Ideas are combined in ways that are derived from the thinking of others (for example, of the authors in sources consulted).</td>
<td>Ideas are copied or restated from the sources consulted.</td>
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<td>Communicating something new</td>
<td>Created product is interesting, new, or helpful, making an original contribution that includes identifying a previously unknown problem, issue, or purpose.</td>
<td>Created product is interesting, new, or helpful, making an original contribution for its intended purpose (for example, solving a problem or addressing an issue).</td>
<td>Created product serves its intended purpose (for example, solving a problem or addressing an issue).</td>
<td>Created product does not serve its intended purpose (for example, solving a problem or addressing an issue).</td>
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Source: From *How to Create and Use Rubrics for Formative Assessment and Grading* (p. 54), by Susan M. Brookhart, 2013, Alexandria, VA: ASCD. Copyright 2013 by ASCD. Adapted with permission.
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startling variety of important concepts from different contexts or disciplines.
Content & Curricula
Assessment
Learning Practices
Teaching Practices
Organization
Leadership & Values
Connectedness
Infrastructure
A cool planning tool for making your class (much) more creative by IPTS
http://bit.ly/1yWwhtf

<table>
<thead>
<tr>
<th></th>
<th>Content &amp; Curricula</th>
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<td>Building on individual strengths and preferences</td>
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<td>Facilitating (social) entrepreneurship</td>
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<td>Applying in practice social inclusion and equity</td>
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<td>Recognizing informal and non-formal learning</td>
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<td>Monitoring quality</td>
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<td>Innovating timetables</td>
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<td>Levelling-up and functioning ICT infrastructure</td>
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<td>Addressing multiple intelligences and learning styles</td>
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<td>Empowering self-regulated learning</td>
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<td>Facilitating peer-to-peer collaboration</td>
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<td>Using/re-using &amp; creating Open Educational Resources (OER)</td>
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<td>Embedding formative assessment</td>
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<td>Engaging through social networks</td>
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<td>Networking with real-world context and actors</td>
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Figure 3  Bloom’s revised taxonomy (Anderson et al., 2001)

Knowledge dimension

- Metacognitive knowledge
  - strategic
  - cognitive tasks
  - self-knowledge

- Procedural knowledge
  - subject-specific skills
  - subject-specific techniques
  - criteria for procedure use

- Conceptual knowledge
  - classifications
  - principles
  - theories

- Factual knowledge
  - terminology
  - specific details

Cognitive dimension

- Create
  - generate
  - plan
  - produce

- Evaluate
  - check
  - critique

- Analyse
  - differentiate
  - organise
  - attribute

- Apply
  - execute
  - implement

- Understand
  - interpret, exemplify, classify, summarise, compare, explain

- Remember
  - recognise
  - recall
Figure 3  Bloom’s revised taxonomy (Anderson et al., 2001)

Knowledge dimension                              Cognitive dimension

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10 / Learning by playing
11 / Self-regulated learning
12 / Personalized learning
13 / Peer-to-peer collaboration
Collaboration hackathon: informal event, people meet to engage in collaborative computer programming.

siyavula.com (teachers hackathon)
Collaboration

hackathon: informal event, people meet to engage in collaborative computer programming.

#collaboration: If you don't understand someone, listen louder!

Collaborative technologies do not remove the need for face-to-face contact but make face-to-face work more critical
different levels of participation

all share goals (risks, resources & rewards)

attitude: sharing and exchanging common purpose - higher level of trust

members identify mutual benefits (additional incentives)

simple level of collaboration. low risk - low commitment

Rheingold (2012)
different levels of participation

- Collaboration
- Cooperation
- Coordination
- Networking

all share goals (risks, resources & rewards)

attitude: sharing and exchanging
common purpose - higher level of trust

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low risk - low commitment

Rheingold (2012)
entrepreneurship

'All knowledge is doing, all doing is knowing'
@petersenge

The education paradox: A long-term investment, but marked by rapid changes in market & government

The aim shouldn't be only opening the school to the society but also bringing...
75 million young people around the world can't find a job.

Only half of young people believe their education improved their chances of finding a job.

But employers can't find enough qualified candidates to fill their job openings.

Over 2/3 of employers have little to no interaction with educators.

McKinsey: “Education to Employment: Designing a System that Works”

4,500 youth, 2,700 employers, 900 education providers

Brazil, Germany, India, Mexico, Morocco, Saudi Arabia, Turkey, the United Kingdom, and the United States.
The education paradox: A long-term investment, but marked by rapid changes in market & government

The aim shouldn't be only opening the school to the society but also bringing the school into the society...

create your own job
Internet is a cultural tool that can be used for flexible learning experiences
entrepreneurship

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The education paradox: A long-term investment, but marked by rapid changes in market & government

The aim shouldn't be only opening the school to the society but also bringing the school into the society

...create your own job

Internet is a cultural tool that can be used for flexible learning experiences

descomplica.com.br
Engaging assessment formats

/ Formative assessment

7 / Recognition of informal & non-formal learning
recognize skills & learning achievements

Recognition (Badges)

"Much of learning takes place outside formal education"
"Much of learning takes place outside formal education"

'augmented learning'
Seely Brown, Douglas Thomas, A New Culture of Learning
Alternative and **flexible credentials** that substitute traditional degree or certificate, composed of **demonstrated outcomes/validated competencies** that are tailored to the desired output from a variety of learning contexts.

Badges provide a **reputation** frameworks for **peer validation**.

- **Capture technical skills** along the path of program completion.
- Document a student’s **ability** to use a piece of equipment.
- Demonstrate **knowledge** of a particular topic.

Badges are becoming the **currency** that provides verified, **specific information from trusted sources about the skills**, competencies and knowledge.
embracing outcomes-driven learning design

download your Passport here

@OpenBadges
@skillshare
@Codecademy
@_BadgeMaker

www.wlv.ac.uk/lib/skills_for_learning/passport.aspx
recognize learning regardless of where or how it occurs (informal)
An indicator of *accomplishment* that can be earned in diverse learning environments.

A 'gamified' achievement based mechanism (*visibility* and *flexibility*).
Assessment
Assessment

New technologies require new methods for evaluating
Assessment

New technologies require new methods for evaluating evaluations shouldn't focus only on acquisition of contents but also the command of 21st century skills.
“decentralized networks are more efficient for creativity and collaborative problem solving where people have more autonomy fo find and use knowledge”

‘if it doesn’t spread it’s dead’
'You shouldn't value what you measure, you should measure what you value'
(Andy Hargreaves)
Digital Maturity
BEFORE SMARTPHONES

HOW OLD IS BARBRA STREISAND?

I THINK SHE'S 71!

REALLY? WOW!

WHO'S BARBRA STREISAND?

AFTER SMARTPHONES
BEFORE SMARTPHONES

HOW OLD IS BARBRA STREISAND?
I THINK SHE'S 71
REALLY? WOW!
WHO'S BARBRA STREISAND?

AFTER SMARTPHONES

© Maria Scriver
Users
Consumers
Communicators
Digitally literate
Safe Skills
Makers
Creators
Collaborators
Digitally critical
Responsible
Understanding

by @mberry

http://flickr.com/photos/cta-h-can
digital prosumers (makers): A transition from passive users of technology, to digital creators of new technology
Is not only your capability to **acquire** new knowledge what matters, but your ability of **get rid of the irrelevant one**
Real changes are in 360°
Q1 How can we improve education?

- Fostering transdisciplinary in the classroom
- Flipping the classroom
- Having more flexible assessments
- Rethinking the assessment for learning
Q2 Which is the main barrier for embracing innovation?

- Assessments
- Resistance to change
- Budget
- Lack of digital skills
Q3 How to recognise learning outside of the classroom?

- Portfolios
- Peers based assessment
- Using multidimensional tools
- It's too complicated
Q4 If technology is the answer what is the question?

- How to improve learning?
- How to enable innovation?
- How to create learning opportunities?
- How to be cool?
THANK YOU!

http://goo.gl/phAIXQ