MOOCs and electrical engineering/computer engineering/computer science

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People have different views on MOOCs
"With great power, comes great responsibility."

The truth is they are neither...
Remember, there are different levels of learning
Bloom’s Taxonomy highlights

The different levels of learning

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation
Bloom’s Taxonomy highlights

The lower levels:
1. Knowledge: Remembering Information
2. Comprehension: Explaining the meaning of information
3. Application: Using abstractions in concrete situations

These are not hard to achieve with MOOCs
Bloom’s Taxonomy highlights

The higher levels:

4. Analysis: Breaking down a whole into component parts.

5. Synthesis: Putting parts together to form a new integrated whole.

6. Evaluation: Judging different potential solutions to a problem; identifying their strengths and weaknesses

This is harder to achieve with MOOCs.

• In fact, one might question if it is even possible
How we learn
How we learn
**How Do We Learn?**

- **Students**
  - Content that is connected
  - Not in isolation
  - Clear communication
  - Active researchers and communicators

- **Teachers**
  - Inquiry, reflection, and sharing
  - Affected by previous experiences, prior knowledge, and current beliefs
  - Looked for a solution or a new strategy

*Construct knowledge of the world as they recognize problems, formulate solutions and arrive at conclusions.*
The Cone of Learning

After 2 weeks, we tend to remember...

- 10% of what we READ
- 20% of what we HEAR
- 30% of what we SEE
- 50% of what we SEE & HEAR
- 70% of what we SAY
- 90% of what we SAY & DO

I see and I forget.
I hear and I remember.
I do and I understand.
— Confucius

Source: Edgar Dale (1969)
Engineers & Computer Scientists

The majority of engineers/computer scientists are application based learners

As such, MOOCs won’t appeal to the majority of our learners insuring a high quality of learning or retention of material.

Not a good choice for fundamental skill development.
There are also problems with MOOCs and accreditation of profession programs

For example: Engineering is an accredited program in Canada
Alternate use for MOOCs

MOOCs provide an opportunity for:

• Additional learning resources
• Online tutorials
• Content reinforcement
• Skills extension
• Other opportunities
Final notes

MOOCs provide a great learning opportunity
We can incorporate materials/learning ideas from MOOCs into normal course offerings:

• Additional learning resources
• Online tutorials
• Crowd sourced support/solution.
• Peer Review