Workshop do Núcleo de Apoio à Pesquisa em Software Livre
São Carlos, 16 e 17 de Outubro de 2014.

# Definição e Aplicação de MOOCs e do Modelo *Flipped Classroom* como Apoio ao Ensino de Computação

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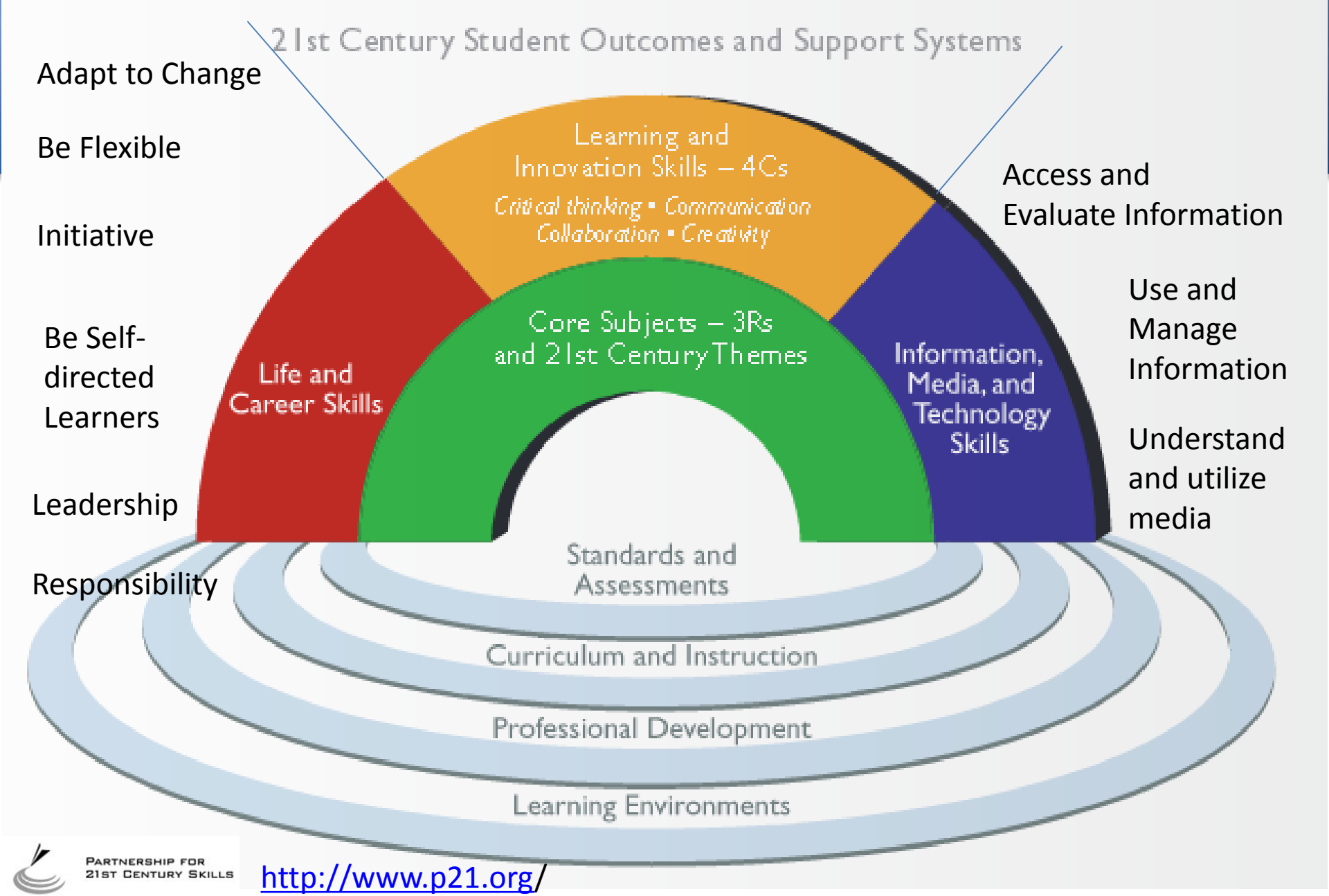
# Contexto

Columbia

**Tecnologias Digitais** + **Metodologias de Ensino**




http://www.p21.org/

# Contexto

- **Tec. Digitais:** ***Massive Open Online Courses*** **(MOOC)**
- ***Met.Ensino:*** ***Flipped Classroom Teaching Model (FC)***



http://www.flippedlearning.org/

**Passive subject** of their own learning.

Students have **homework**

Students have **lectures in classroom**

**Active subject** of their own learning

Receive **short explanations** that should be studied **before each class** (video/podcast/website/book)
**Available anywhere: at home, at work, bus, ...**

**In the Classroom**: take **active** and **collaborative** activities with the support of the teacher

# Problema(s)

- MOOCs atuais: *one-size-fits-all* learning model.
- Replicam a Sala de aula tradicional
  - xMOOCs→ Behaviorismo
  - (Tendência: Construtivista, Sociointeracionista)
- Evasão.
- *A* grande quantidade de informações geradas a partir da interação dos usuários com os MOOCs

# A Nossa Proposta

- Para alcançar a personalização do ensino em um MOOC, nós postulamos que a literatura sobre:
  - *Flipped Classroom*
    - *pre-class, warm-up, master learning ?*
  - *Personalização/Adaptação/Customização*
    - *Personal Learning Environments (PLE)* ?
    - *Mass Customization* (MC)

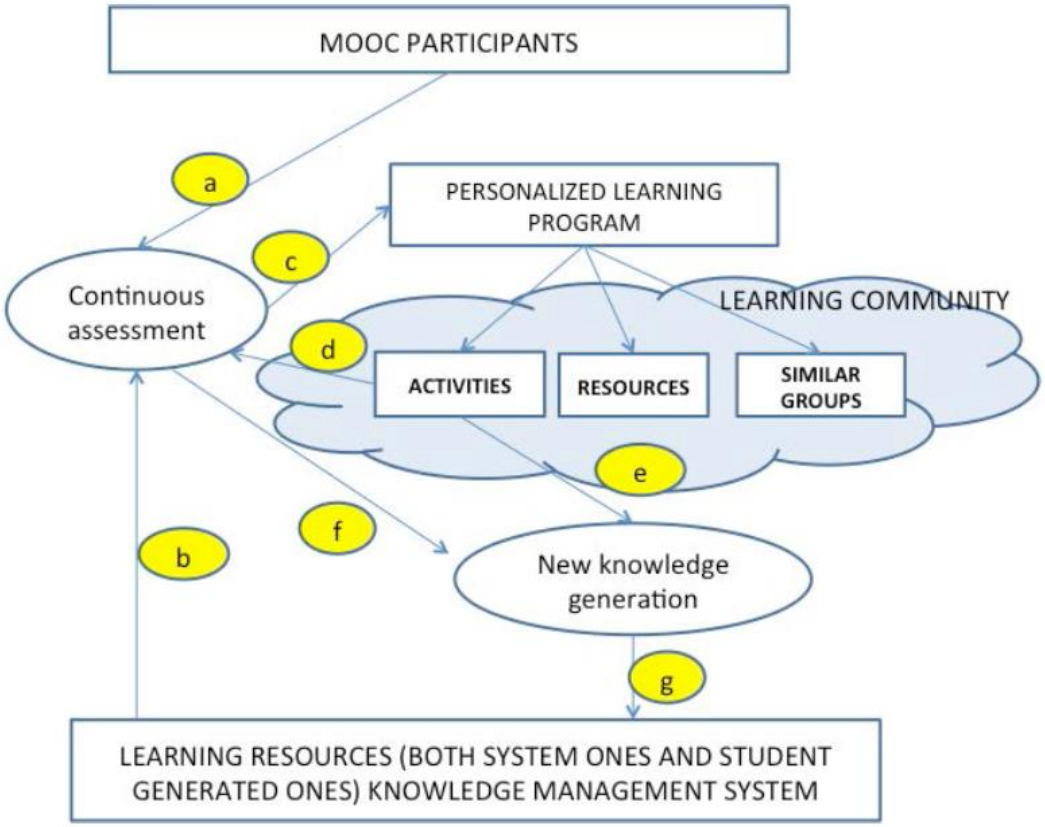
pode nos ajudar a obter *insights* importantes.

# Objetivo Principal

- Investigar a aplicação de conceitos e princípios do modelo *Flipped Classroom* no projeto, desenvolvimento e disponibilização de MOOCs.

  – Adicionalmente, utilizar a informação produzida e armazenada nos MOOCs para promover sua própria adaptação e personalização.

# Abordagens



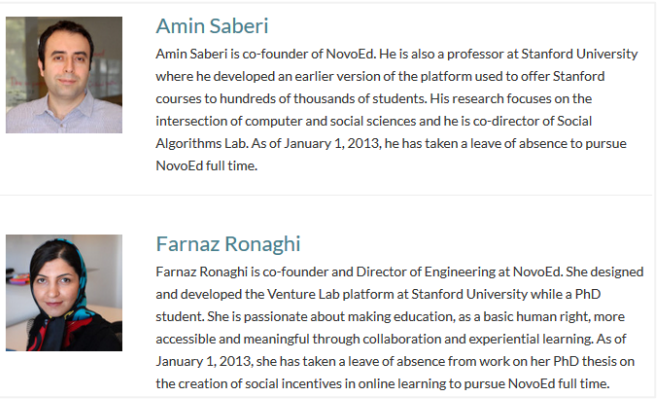

A methodology proposal for developing Adaptive cMOOC [3]

Ausência de rigor científico.

Avaliações “fracas”.

# Abordagens

- NovoED
  - Student-centered Online Learning Environment
  - Collaboration and Teamwork



**Amin Saberi**

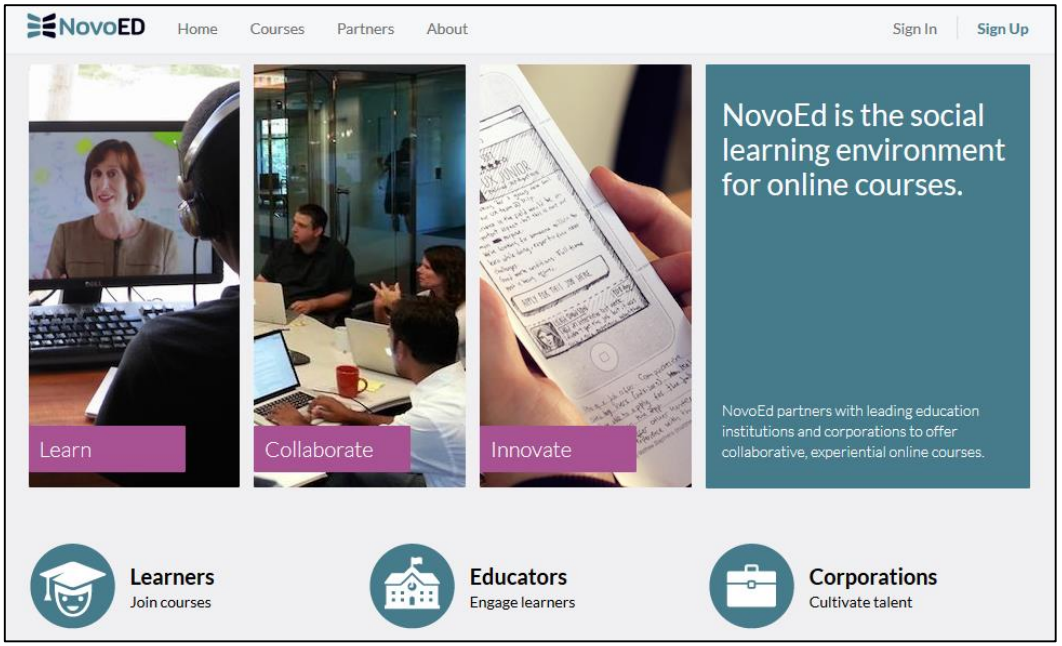
Amin Saberi is co-founder of NovoEd. He is also a professor at Stanford University where he developed an earlier version of the platform used to offer Stanford courses to hundreds of thousands of students. His research focuses on the intersection of computer and social sciences and he is co-director of Social Algorithms Lab. As of January 1, 2013, he has taken a leave of absence to pursue NovoEd full time.



**Farnaz Ronaghi**

Farnaz Ronaghi is co-founder and Director of Engineering at NovoEd. She designed and developed the Venture Lab platform at Stanford University while a PhD student. She is passionate about making education, as a basic human right, more accessible and meaningful through collaboration and experiential learning. As of January 1, 2013, she has taken a leave of absence from work on her PhD thesis on the creation of social incentives in online learning to pursue NovoEd full time.

Stanford University



# Abordagens

- Can You Flip an Online Class?
  - Barbara Honeycutt
  - North Carolina State University

FLIP IT CONSULTING

Honeycutt, B. & Garrett, J. (September 2013). **The flipped approach to a learner-centered class**. (whitepaper). Magna Publications.

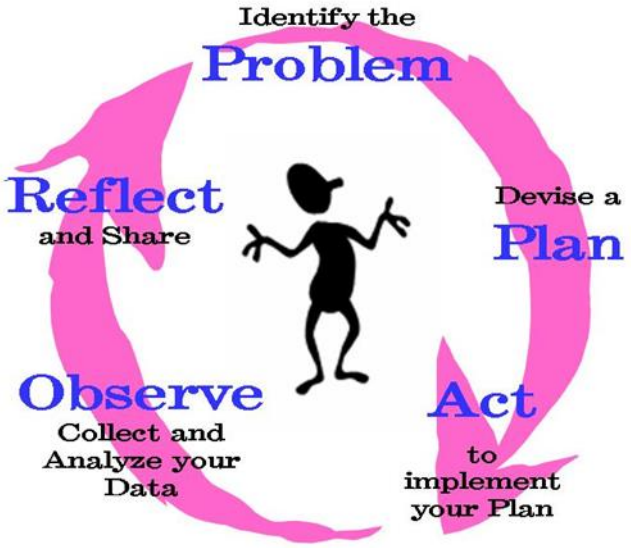
Honeycutt, B. & Glova, S. (2013). ***101 Ways to Flip Your Online Class***. Flip It Consulting & Reify Media. Raleigh, NC.

# Resultados Esperados

- Definição de um conjunto de requisitos/abordagem de personalização para MOOCs.
- Projeto, desenvolvimento e disponibilização de um MOOC personalizado (na área de Ciência da Computação).
- Contribuir para a utilização efetiva de MOOCs personalizados em cenários reais de ensino e aprendizagem.

# Metodologia

- **Revisão Sistemática:** pra descobrir lacunas e conhecer melhor a área.
- **Pesquisa Ação como abordagem principal**
  - Flipped Classroom
  - MOOCs
  - Integração/Personalização/ Adaptação/Customização
  - Experimentos em Computação.



# Resultados já obtidos

- Experimentos e *Flipped Classroom*
  - *Tools for the Flipped Classroom Model: an Experiment in Teacher Education*
    - *Frontiers in Education (FIE), Madri.*
  - *Testing Flipped Classroom and Problem-Based Learning in a CS1 Course*
    - *Em processo de submissão.*

# Resultados já obtidos

- Uma revisão sistemática sobre MOOCs
  - *Construção e Uso de MOOCs: Uma Revisão Sistemática*
    - *SBIE, Congresso Brasileiro de Informática na Educação (CBIE), Dourados.*
- Experimentos e MOOCs
  - *Avaliação dos MOOCs Coursera e edX a partir da Condução de Estudos Experimentais*
    - *Em processo de submissão.*

# Resultados já obtidos

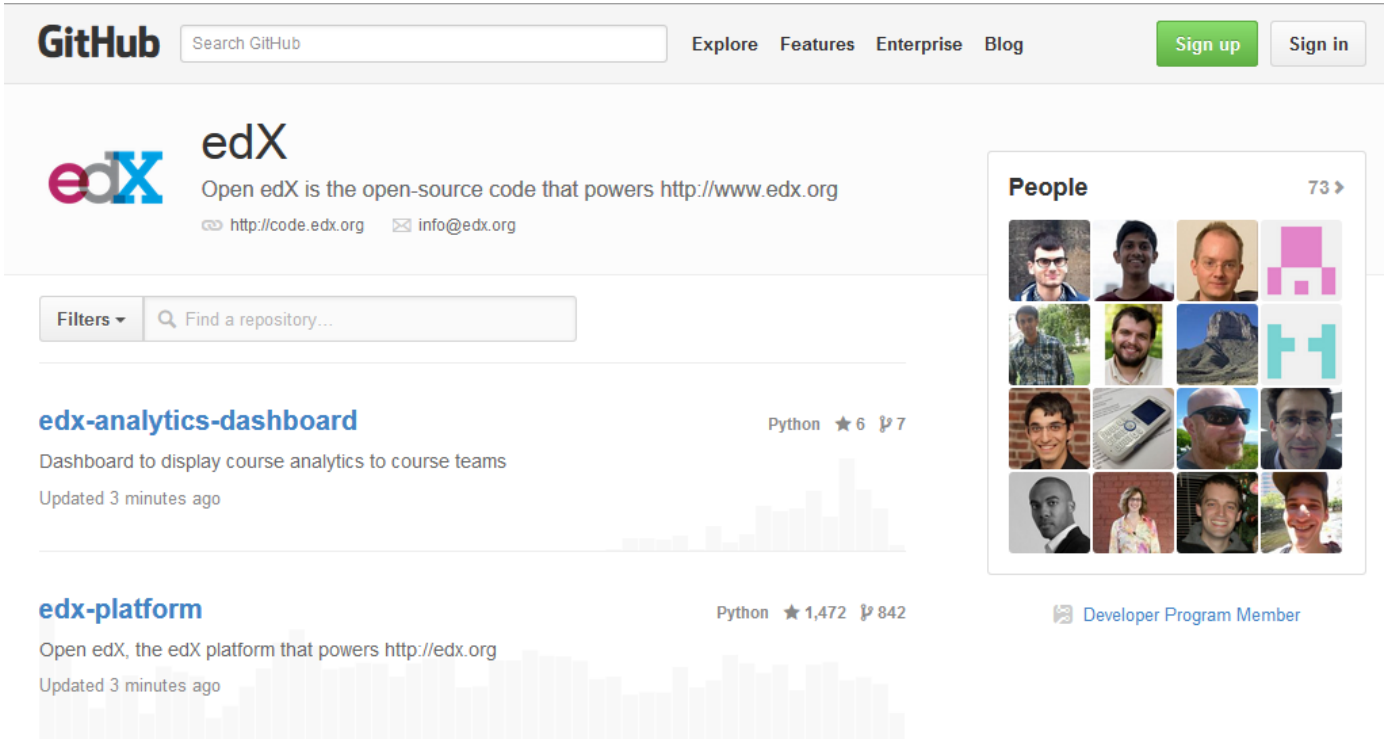
- *Melhorando Experiências Acadêmicas*
  - *A Recommendation System to Support the Students Performance in Programming Contests*
    - *Frontiers in Education (FIE), Madri.*

# Experimental Platform for Online Education at Scale

- Google Course Builder
  - https://code.google.com/p/course-builder/

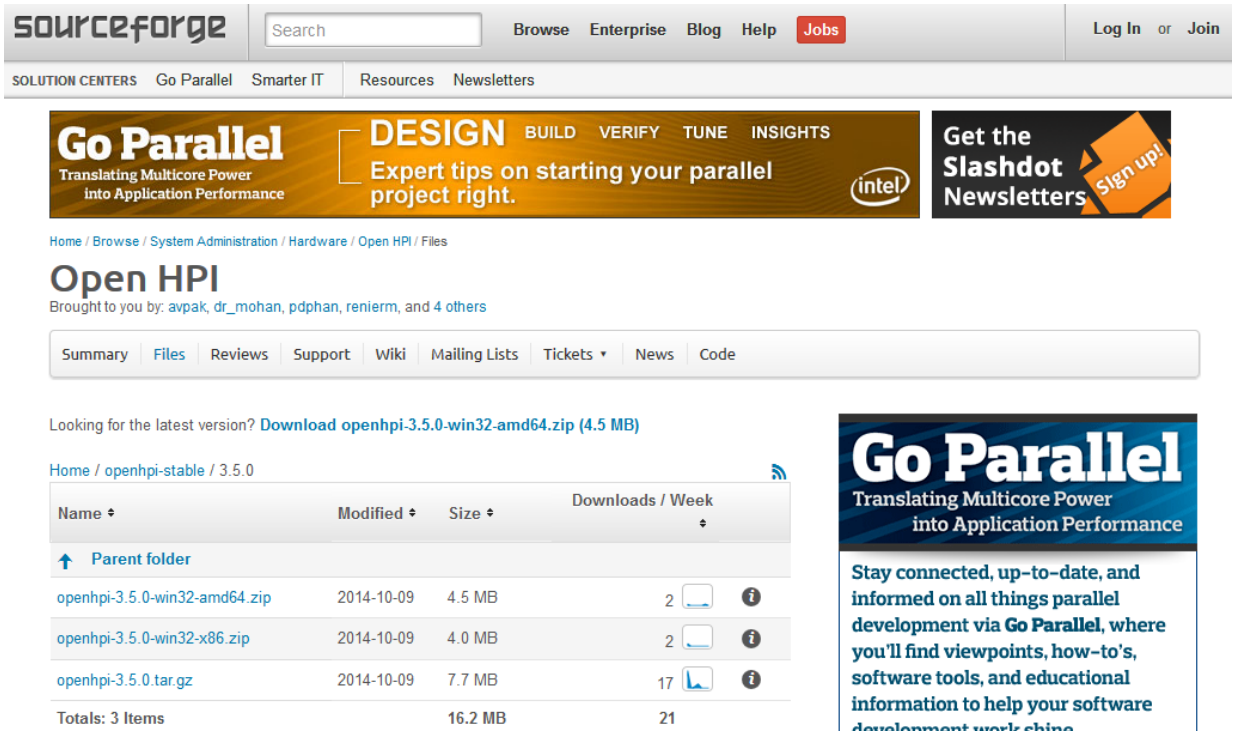
# Experimental Platform for Online Education at Scale

- Open edX platform
  - *code.**edx**.org/*



# Experimental Platform for Online Education at Scale

- openHPI
  - https://openhpi.de



# Experimental Platform for Online Education at Scale

- Open MOOC
  - openmooc.org
- Outros
  - http://www.learndash.com/5-mooc-building-platforms/

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