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Educational, Scientific and
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OPEN EDUCATION
CONSORTIUM

The Global Network for Open Education



INTERNATIONAL
COUNCIL FOR OPEN AND
DISTANCE EDUCATION

A global network for online, open and flexible education

Symposium of Chairs in Open Educational Resources

in conjunction with the ICDE World Conference on Online Learning
Toronto ON Canada

Open courses (micro & MOOC) and open access



INTERNATIONAL
COUNCIL FOR OPEN AND
DISTANCE EDUCATION



Dr. María Soledad Ramírez Montoya

UNESCO Chair in OEP/

ICDE Chair in OER & CLARISE

Tecnológico de Monterrey, Mexico

Toronto, October 16th, 2017

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Colaboran:



Schedule

- Background with MOOC & micro
- Current project with 12 MOOC
 - Objective and project products
 - MOOCs team
 - Instructional model
 - Results
- Ideas for collaboration



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Convocatoria ABIERTA para inscripción (hasta el 12 de septiembre, 2011)

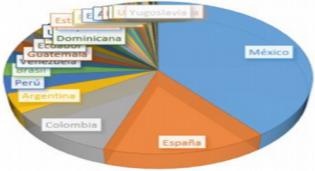


Seminario virtual para formadores en el tema del **Movimiento Educativo Abierto**

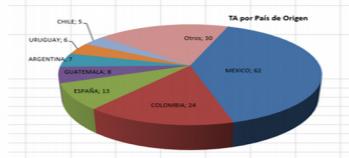
SIN COSTO (GRATUITO)
Cupo límite 200 participantes (sujeto a disponibilidad)
12 de sept - 9 dic, 2011 (52 hrs acreditables)

MOOCs: Innovation & OER (2013* and 2014**)

Participants:
20,400 (52 countries)* and
18,000 (61 countries)**



Instruction mediated by:
800* and 2500**
Instructors in Team Teaching (TA).



MOOC (2011-2016)

MOOC: Teaching skills & OER (2013)



1126 participants
from 13 countries

Instruction mediated
by 58 instructors

Estudio comparativo del desarrollo de competencias digitales en el marco del programa **Mi Compu.Mx**

Naturaleza del proyecto Desarrollo de proyecto Recursos
Bienvenida Objetivos del proyecto Metodología Resultados del proyecto Impacto esperado del proyecto Equipo de investigadores

Bienvenida

El proyecto "Estudio comparativo del desarrollo de competencias digitales en el marco del programa **Mi Compu.mx**" (apoyado por el Fondo SEP-SEB CONACYT -2013-01 con número de convenio 000000000230297) tiene el objetivo de analizar el desarrollo de competencias digitales entre estudiantes de 5º y 6º de primaria que participan en el programa "Mi Compu.MX" en los estados de Colima, Sonora y Tabasco y comparar entre el uso y producción de recursos educativos abiertos (REA), en contraste con la falta de éstos.

El equipo del proyecto está conformado por académicos de Colima, Tabasco, Sonora y Nuevo León, donde el Tecnológico de Monterrey tiene la responsabilidad técnica y administrativa del proyecto.

AVISO:
Inscríbete al curso MOOC que se impartirá del 1 al 30 de septiembre, en la sección de Desarrollo



Colaboran:



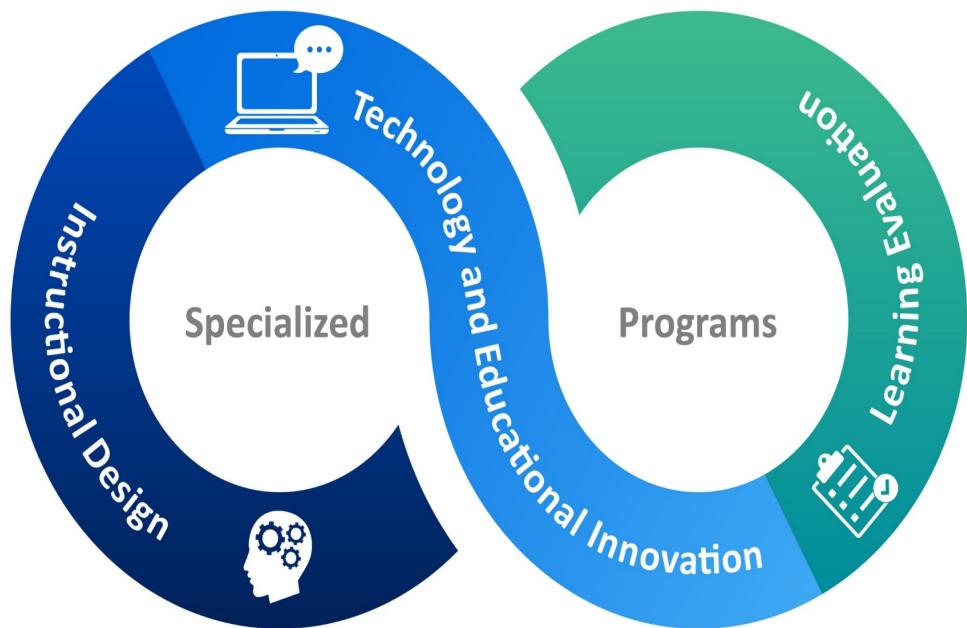
Micro MOOC (2016-2018)

3 Specialized Programs through MOOCs

The specialized program carries **academic credits**, providing a flexible way to start the **Master in Education** Program.

Each program includes 3 courses and culminates in a Capstone Project that allows learners to apply their knowledge.

Created by: Tecnológico de Monterrey, Coursera Platform



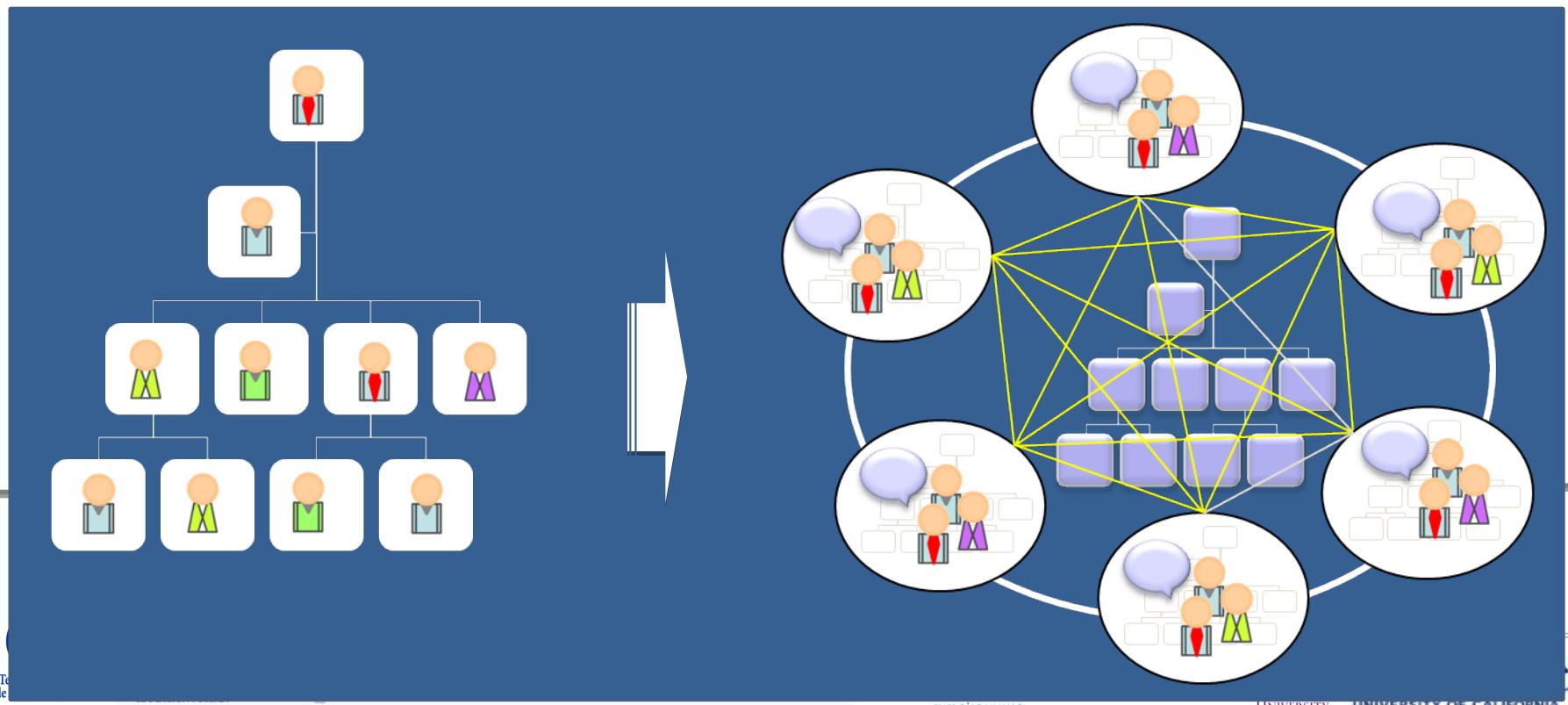
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Colaboran:



As a group, we decided to integrate several working teams to maximize the potential of learning via the creation of a Community of Practice (CoP) for each research project.





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Project with 12 MOOC

- Project 266632 Bi-National Laboratory on Smart Sustainable Energy Management and Technology Training
- Funded by the CONACYT-SENER
- Subproject: Interdisciplinary, Collaborative and Open Innovation to train in Energy Sustainability

LABORATORIO BINACIONAL
PARA LA GESTIÓN INTELIGENTE DE
LA SUSTENTABILIDAD ENERGÉTICA
LA FORMACIÓN TECNOLÓGICA

INICIO INFRAESTRUCTURA DESARROLLO DE TALENTO REDES INVESTIGACIÓN AGENDA ACERCA DE

f t in

LABORATORIO BINACIONAL

<http://energialab.tec.mx/>



Objective

Support the **formation of human resources specialized in energy sustainability**, and develop human talent with the necessary capabilities to respond to the technological conditions prevailing in the energy value chain (Electric sector), through **graduate programs, massive open online courses** that will be available nationwide, and validate through competencies certification processes.



Products

- 15,000 Formation of human resources in energy sustainability
- 10 Graduate students
- 12 MOOCs
- 2 Community Workshops
- 3 Books
- 15 Research papers
- 18 Conference participations
- 18 Short term scholar programs
- 1 Web page <http://energialab.tec.mx/>
- 1 Social innovation lab <http://openergylab.mx/>
- 1 Institutional repository with Energy OER
- 12 Technical reports



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Colaboran:



MOOC Design and Teaching Time line

2016	2017		2018		2019
Phase 1	Phase 2	Phase 3	P4	P5	P6
<ul style="list-style-type: none">● 4 MOOC design	<ul style="list-style-type: none">● 4 MOOC design● 4 MOOC teaching	<ul style="list-style-type: none">● 4 MOOC design● 8 MOOC teaching	<ul style="list-style-type: none">● 12 MOOC teaching		



MOOCs team

Energy experts

- Research Group on Energy and Climate Change
- School of Engineering and Sciences
- Business School
- Expert Guests

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Educational Innovation experts

- Research Group on Educational Innovation
- School of Humanities and Education
- Graduate students

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Teaching and Learning experts

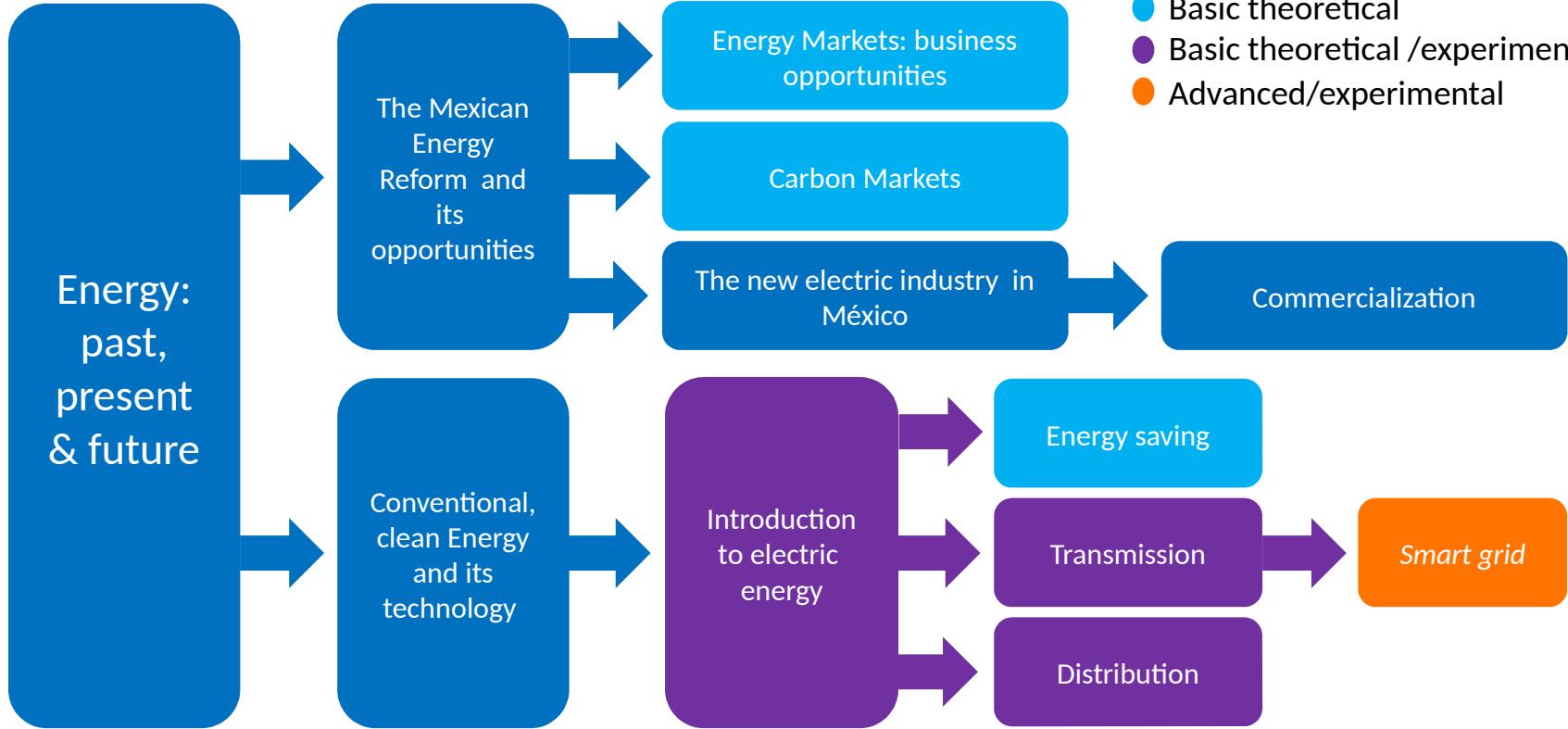
- eLearning team
- Teaching team

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MOOCs sequence

- General knowledge
- Basic theoretical
- Basic theoretical /experimental
- Advanced/experimental





Learners' profile

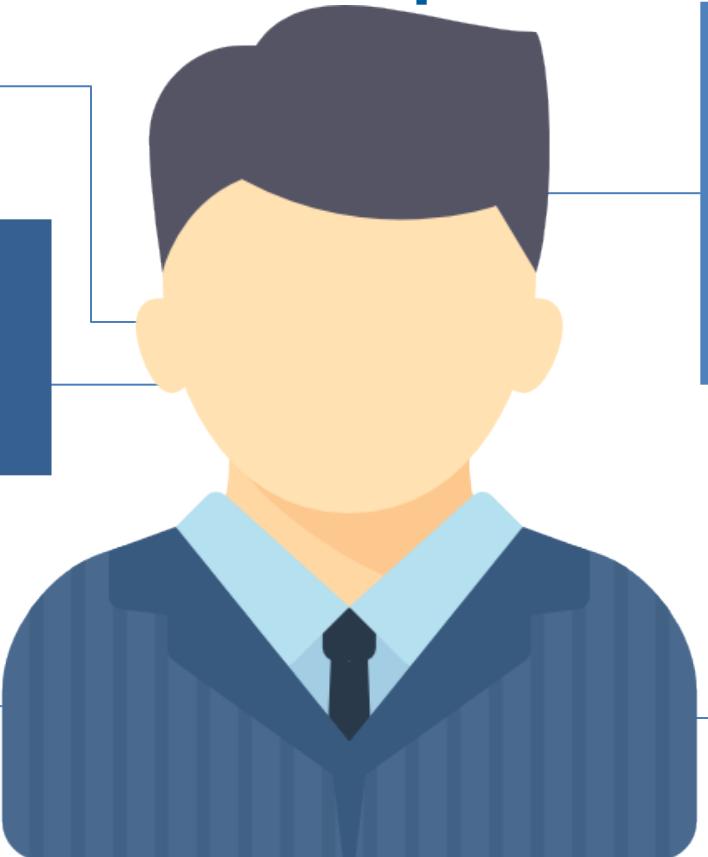
+ 17 years old

+ High school

Wants to learn about
energy sustainability

Chooses xMOOC as a
training program to achieve
learning goals

CFE or industry related
employees



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Instructional model



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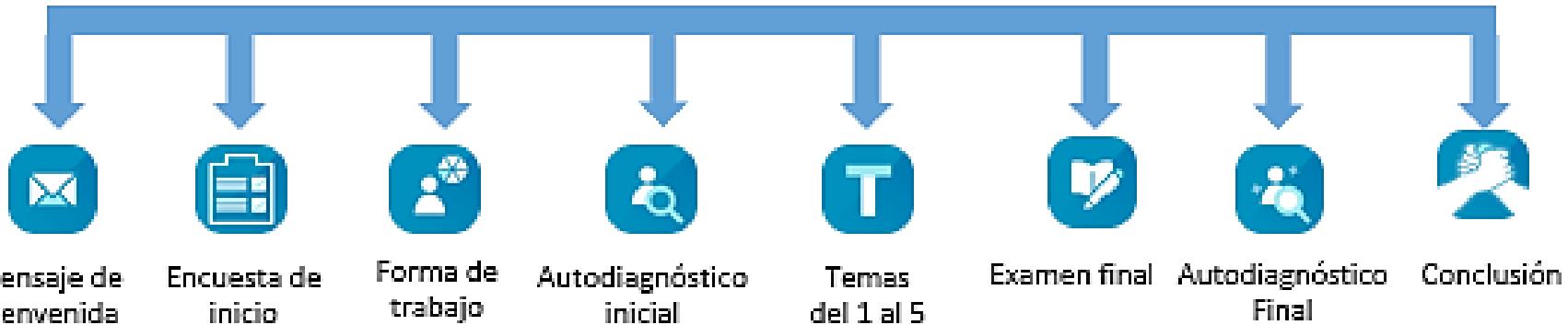
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Colaboran:



Learning path

Página descriptiva





Educational innovation elements



Gamification

- A question is presented to learners about the content they have studied.
- Badges are assigned to learners that solve the question based on how many opportunities and how long it took them to finish the exercise.

Usuario	Tiempo en contestar	Número de intento	Insignia
Usuario_1	00:01:23	1	
Usuario_2	00:02:01	2	
Usuario_3	00:12:45	3	

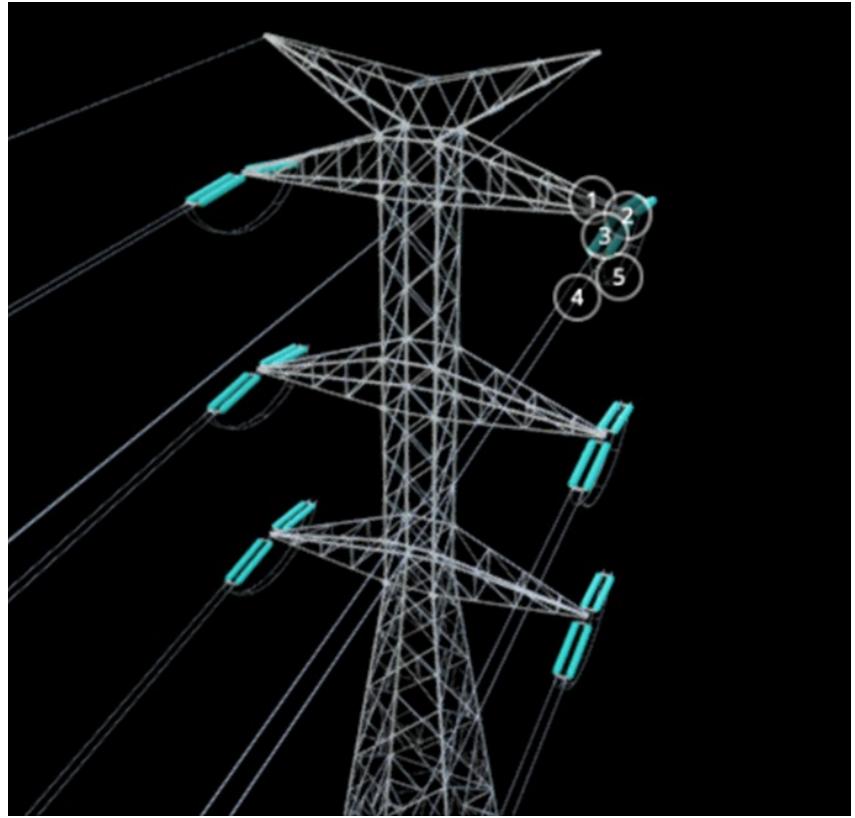


Educational innovation elements



Virtual reality

- The use of this type of resources allows learners to interact with concepts and promotes active learning.
- The resources are selected on how they best support the learning experience.





Educational innovation elements



Augmented reality

- The use of this type of resources allows learners to interact with concepts and promotes active learning.
- The resources are selected on how they best support the learning experience.



[52776991] / zhuda / Shutterstock

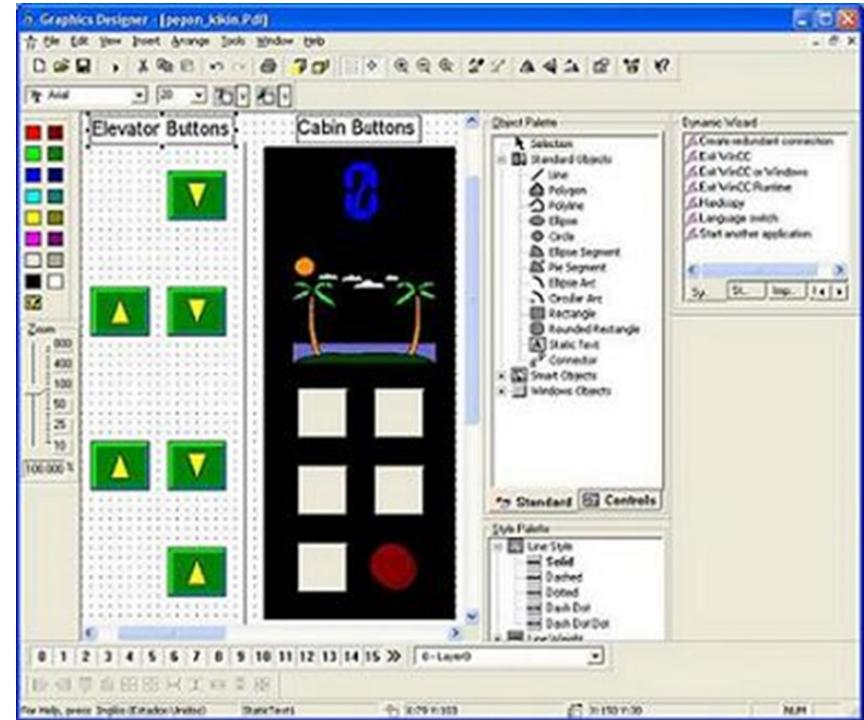


Educational innovation elements



Remote lab

- Learners access the remote lab based at Tecnológico de Monterrey and complete several exercises to practice the concepts they have reviewed in the MOOC.
- There is a limited number of seats, so students have to make a reservation beforehand.





Educational innovation elements

Biometrics

- MOOCs are delivered on MexicoX Platform, which is provided by the Mexican government.
- To this date the platform does not offer the use of biometrics, so this functionality will be tested using an external provider.



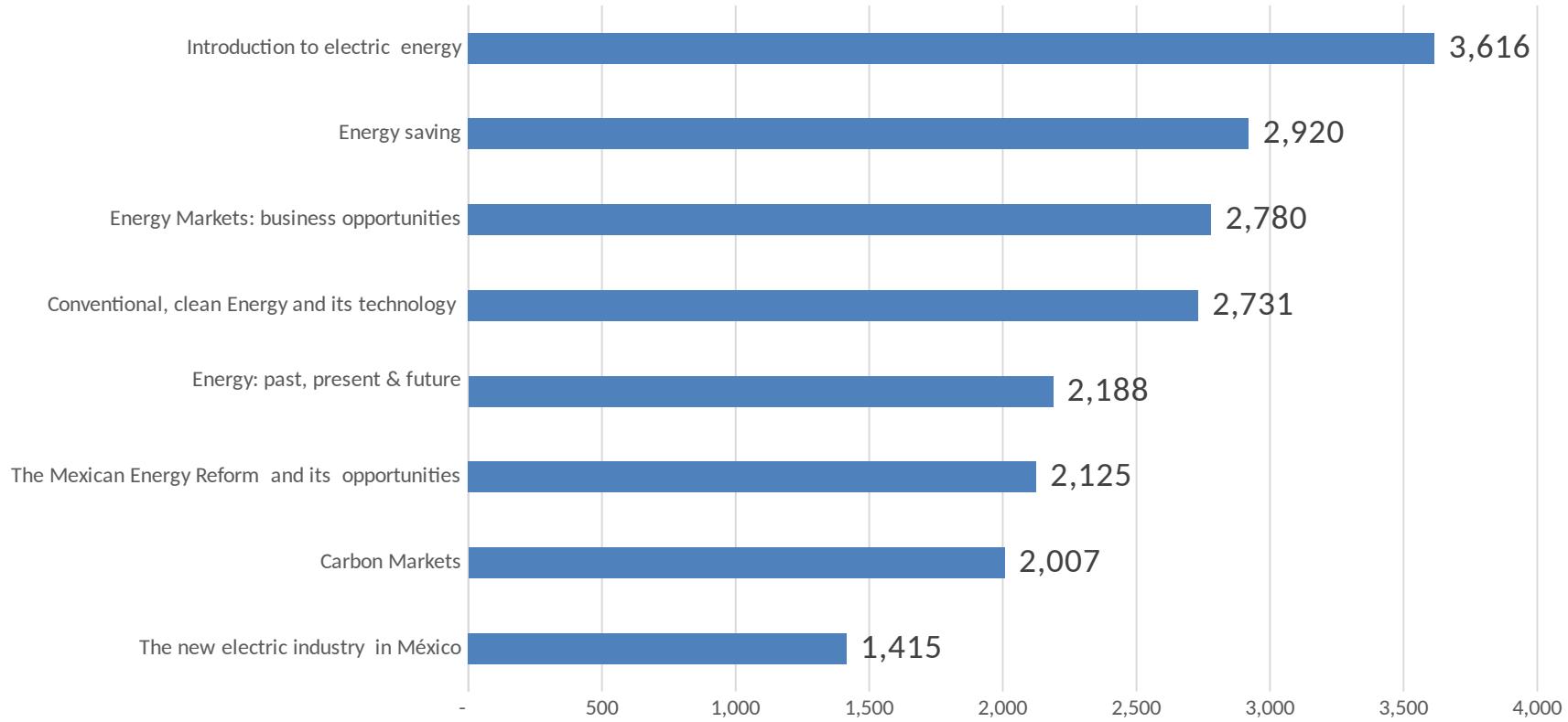


Phase 2 (Jan-Apr2017): Enrollments

MOOC	Enrolled	Certificates	Completions
Conventional & Clean Energy and its Technology	6,022	1,031	17%
Energy: past, present & future	4,224	646	15%
The Mexican Energy Reform and its opportunities	4,201	648	15%
The new electric industry in México	2,763	474	17%
	17,210	2,799	16%



Phase 3 (Sep-Nov 2017): Enrollments





Learners' experience

'Energy: past, present and future'

I have taken many MOOC across platforms...and few courses I have completed among them this course. When I compare it I find that this course has high quality content, resources are well made and the proposed activities are not only quizzes but more motivating such as networking and the gamification challenge, which help me to apply my knowledge and share it with others.

Regards, Martha Argueta.

'The Mexican Energy Reform and its opportunities'

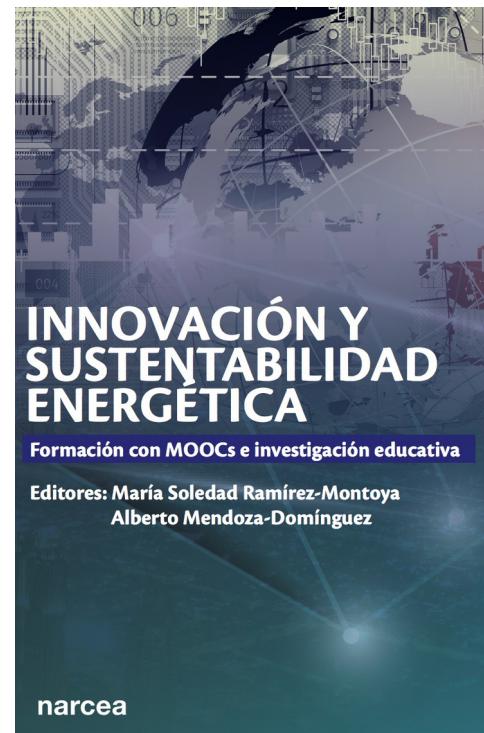
I want to congratulate Dr. Luis Alberto Serra Barragán and each and every one of the collaborators by the brilliant integration of content, methodology, and presentation of this course, as well as the Tecnológico de Monterrey for his participation in this educational platform, congratulations.
Joaquín Caballero Vázquez.

Goodnight I would like to thank Dr. Luis Sierra, the teaching staff, MéxicoX platform, and Tecnológico de Monterrey for the present course, certainly is a valuable tool for understanding and learning how to apply the energy reform. Excellent course! Thank you.



Research and publications

- Book "Energy sustainability and Innovation: training with MOOCs and educational research". (Volume 1). España: Narcea
- Carrillo-Rosas, A. & Ramírez-Montoya, M. S. (2016). MOOC as a viable option to energy sustainability and technological training. *Proceedings of the 9th annual International Conference of Education, Research and Innovation* (pp....) Seville, Spain: ICERI. Available: <http://hdl.handle.net/11285/620897>
- González-Pérez, L. I., Ramírez-Montoya, M.S. & García-Peñalvo, F. J. (2016). Discovery Tools for Open Access Repositories: Literature Mapping. In *Proceedings of the fourth International Conference on Technological Ecosystems for Enhancing Multiculturality, TEEM 2016*. Salamanca, Spain. Available: <http://hdl.handle.net/11285/620885>
- González-Pérez, L. I., Ramírez-Montoya, M.S. & García-Peñalvo, F. J. (2016). Open access to educational resources in energy and sustainability: Usability evaluation prototype for repositories. In *Proceedings of the fourth International Conference on Technological Ecosystems for Enhancing Multiculturality, TEEM 2016*. Salamanca, Spain. Available: <http://hdl.handle.net/11285/620884>
- Mena, J., E., Ramírez-Montoya, M.S. & Rodríguez Arroyo, J.A. (2016). Users' digital competences as perceived in a MOOC course and its relation to the use of OER: A possible path to teaching energy sustainability. *Proceedings of the 9th annual International Conference of Education, Research and Innovation* (pp....) Seville, Spain: ICERI. Available: <http://hdl.handle.net/11285/620883>
- Minga-Vallejo, R. E., Ramírez-Montoya, M. S., & Rodríguez-Conde, M. J. (2016). Open innovation and social construction through MOOCs of energy sustainability: contributions from theoretical foundation. In *Proceedings of the Fourth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'16)*. Available: <http://hdl.handle.net/11285/620900>





Research and publications

- Rincón-Flores, E., Ramírez-Montoya, M.S. & Mena, J. J. (2016). Problem-based Gamification on sustainable energy´s MOOCs. *Proceedings of the 9th annual International Conference of Education, Research and Innovation* (pp....) Seville, Spain: ICERI. Available: <http://hdl.handle.net/11285/620899>
- Rincón-Flores, E., Ramírez-Montoya, M.S. & Mena, J. J. (2016). Problem-based Gamification on sustainable energy´s MOOCs. *Proceedings of the 9th annual International Conference of Education, Research and Innovation* (pp....) Seville, Spain: ICERI. Available: <http://hdl.handle.net/11285/620899>
- Rincón-Flores, E., Ramírez-Montoya, M.S. & Mena, J. J. (2016). Challenge-based gamification as a teaching' Open Educational Innovation strategy in the energy sustainability area. In *Proceedings of the fourth International Conference on Technological Ecosystems for Enhancing Multiculturality, TEEM 2016*. Salamanca, Spain. Available: <http://hdl.handle.net/11285/620886>
- Riofrío-Calderón, G., Ramírez-Montoya, M. S., & Rodríguez-Conde, M. J. (2016). Mediation practices for learning in MOOC courses to promote open innovation. In *Proceedings of the Fourth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'16)*. Available: <http://hdl.handle.net/11285/620896>
- Yañez-Figueroa, J. A., Ramírez-Montoya, M. S., & García-Peñalvo, F. J. (2016). Open innovation laboratories for social modeling sustainable society sensitive to social needs. In *Proceedings of the fourth International Conference on Technological Ecosystems for Enhancing Multiculturality, TEEM 2016*. Salamanca, Spain. Available: <http://hdl.handle.net/11285/620882>
- Yañez-Figueroa, J. A., Ramírez-Montoya, M. S., & García-Peñalvo, F. J. (2016). Systematic mapping of the literature: social innovation laboratories for the collaborative construction of knowledge from the perspective of open innovation. In *Proceedings of the fourth International Conference on Technological Ecosystems for Enhancing Multiculturality, TEEM 2016*. Salamanca,



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Collaboration

- Establish partnerships with experts and professors in MOOCs related areas in order to learn from other universities experience on designing and teaching MOOCs.
- Participate in short term scholar programs for Tec professors and graduate students at other universities.
- Write research papers and projects in conjunction with professors and graduate students at other universities.



Potentials and challenges that can arise from the integration of learning in Open courses (micro & MOOC) and open access

- On-going research
- Enhanced instructional design
- Shared communication
- Technical support
- Further and sustained impact on training and knowledge transference.



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Monographics of open education

- Revista Virtuales-monográfico del Movimiento Educativo Abierto
<http://micampus.ccm.itesm.mx/web/division-de-ciencias-sociales-y-humanidades/publicaciones/virtualis/convocatoria12>
)
- Monográfico en revista Comunicar (JCR, Q1)- Noviembre 2017



Comunicar 54 (2018-1):
Editores Temáticos:
Dra. María-Soledad Ramírez-Montoya, Tecnológico de Monterrey (ITESM) (Méjico)
Dr. Rory McGrath, Universidad de Athabasca (Canadá)
Dr. Francisco-José García-Pérez, Universidad Salamanca (España)
Fecha final de llamada: 30 mayo 2017

Call for papers - Comunicar...
Colaboran:
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Invitation to stay Unesco December 2017



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¡Thanks!

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Esta investigación es un producto del proyecto 266632 "Laboratorio Binacional para la Gestión Inteligente de la Sustentabilidad Energética y la Formación Tecnológica" financiado a través de Fondo CONACYT SENER de Sustentabilidad Energética (S0019201401).

This research is a product of the Project 266632 "Laboratorio Binacional para la Gestión Inteligente de la Sustentabilidad Energética y la Formación Tecnológica" ["Bi-National Laboratory on Smart Sustainable Energy Management and Technology Training"], funded by the CONACYT SENER Fund for Energy Sustainability (Agreement: S0019~2014~01).