



**16th HER  
2019**



# Translational research and evidence-based education: knowledge mobilization in higher education

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**@melchorsm**

# Mexican Constitution



**“Article 3. Every individual has the right to receive education.**

**II. The criterion that will orient this education will be based on the results of scientific progress...”**





**“Education is our main mission”  
Dr. Enrique Graue, UNAM Rector**



**CODEIC**

COORDINACIÓN DE DESARROLLO  
EDUCATIVO E INNOVACIÓN  
CURRICULAR UNAM

# Mission

“To participate with UNAM in the development, implementation and evaluation of educational innovations, curricular strategies, teaching and assessment methods, based on the best available evidence, to drive teachers’ professional development and students’ complex learning”.

**Evaluation  
and assessment**



**Educational  
Development  
and Innovation**



# EDUCATIONAL DEVELOPMENT AND CURRICULAR INNOVATION

**Ana María del Pilar  
Martínez Hernández**



Department of  
Curriculum

Education  
Research

Educational  
Innovation

Academic  
Development

**Educational  
translational  
research**



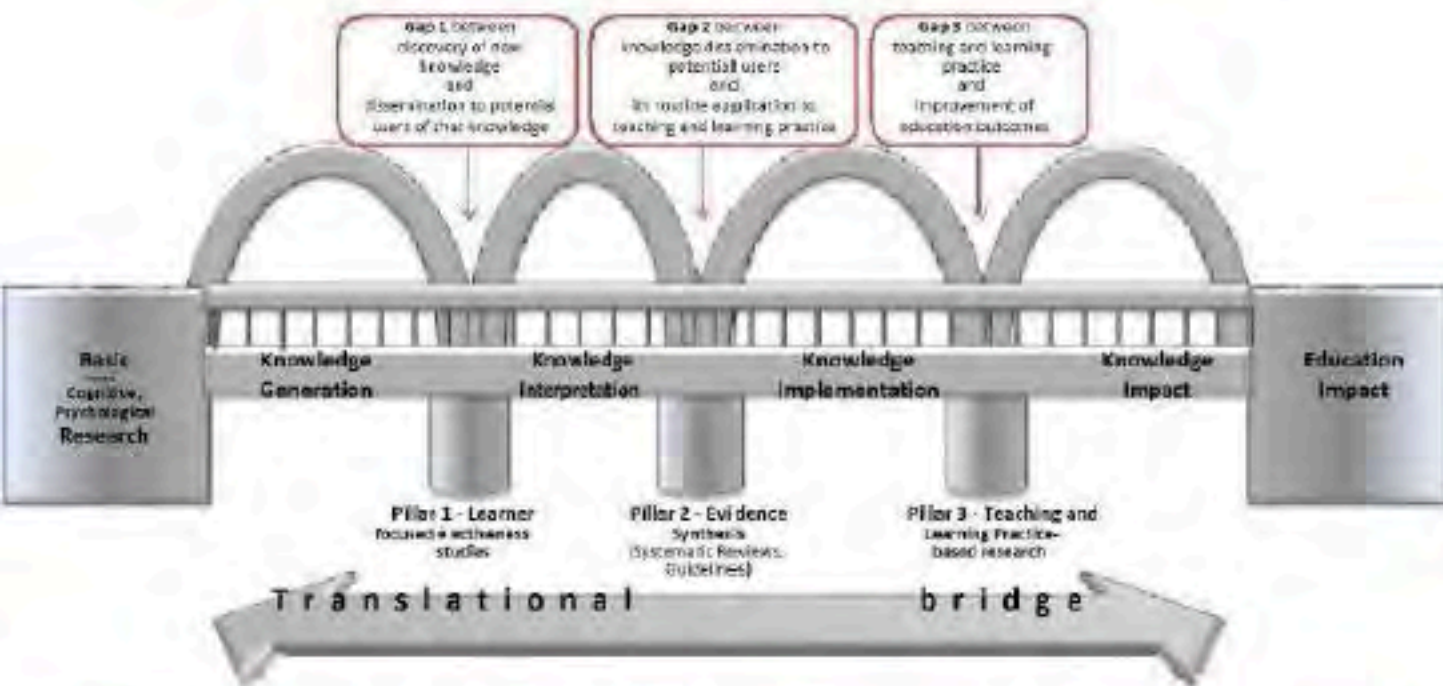
# What is translational science?



<https://ctsi.psu.edu/translational-research/>



# Translational research in education: a bridge between theory and educational practice



Aymerich M, et al. *Ann Transl Med Epidemiol.* 2014; 1(1): 1005.

## Professor, how do you make your decisions?



**“In my scientific and professional practice I use the best evidence”**

## Professor, how do you make your decisions?



**“...and in teaching I use tradition and intuition”**

**“Best evidence education is the implementation, by teachers in their practice, of methods and approaches to education based on the best evidence available...”**

**Harden RM  
Best Evidence  
Medical Education.  
Med Teach 1999; 21:553-562**

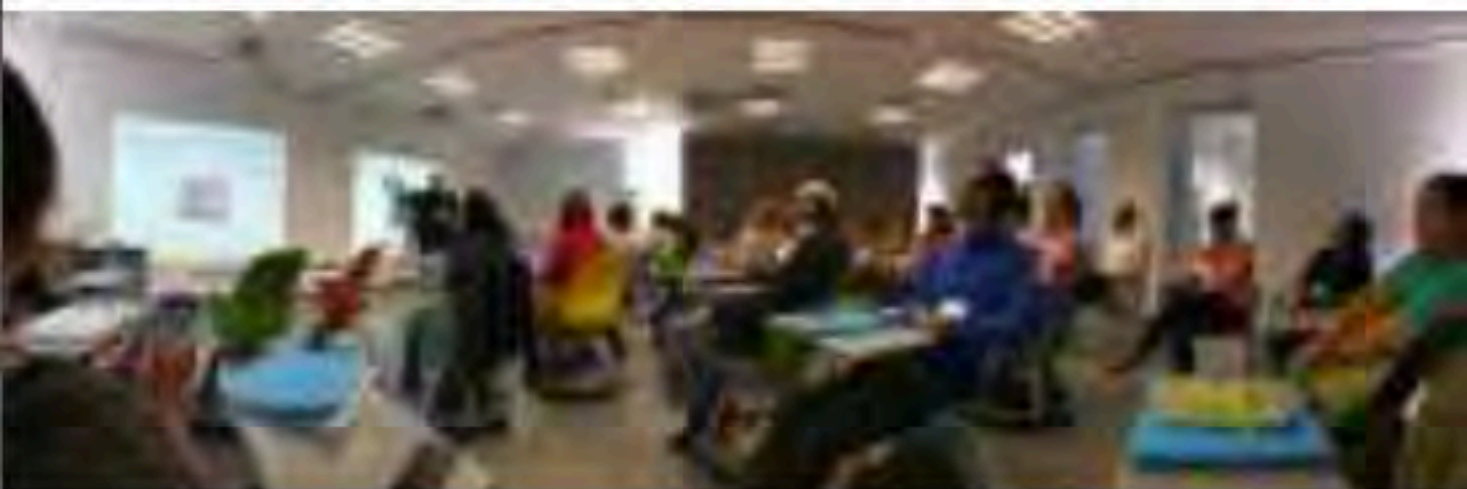


# UNAM EVIDENCE-BASED EDUCATION COURSES



**EBE Course: 20 hours**

**Blended learning -> 2 FTF five-hour sessions two weeks apart, distance homework (G-drive)**



**EBE basics**

**How to generate answerable questions**

**Databases and search strategies**

**Critical appraisal of papers -> Case-based SG**



<http://protectstudentsabroad.org/evidence-based-education/>

## Educational vignette ...

- ✓ You are responsible of the Continuing Education Department in a research-oriented university.
- ✓ There are many complaints that teachers use too many badly done PowerPoint slides in their presentations.
  - ✓ What can you do?



## Question...

- ✓ **P** = In continuing education activities...
- ✓ **I** = ...using strategies to decrease cognitive load in presentations...
- ✓ **C** = ...compared to not using them...
- ✓ **O** = ...results in enhanced learning?



### PUBLICATION DATE

1970s	513
1980s	2272
Since 2002 (last 2 years)	8012
Since 2007 (last 10 years)	17518
Since 1987 (last 20 years)	23020

### DESCRIPTION

Foreign Countries	7549
Online Courses	7347
Educational Technology	6381
Instructional Methods	5870
Electronic Learning	5639
Distance Education	4658
Higher Education	4177
Student Attitudes	3928
Internet	3824
Computer-Mediated Learning	3018

### SOURCE

Online Subscribed	3609
ProQuest LLC	1418

### Collection Thesaurus

online learning

Advanced Search Tools

Peer reviewed only  Full text available on ERIC

Showing 1 to 15 of 26 entries | [Back](#) | [Close](#)

#### Fast Facts about Online Learning

International Association for K-12 Online Learning, 2013

This report explores the latest data concerning online and blended learning, enrollment, access, courses, and key practice indicators. It also reviews online learning statistics, trends, policy issues, and INACOL strategic priorities. This report provides a snapshot view of state funding models for both full-time and supplemental online learning.   
Disciplines: 2 (Social Learning, Blended Learning, Novice in Education, Online Courses)

[Download full text](#)

#### Emotional Intelligence as a Determinant of Readiness for Online Learning

Sundar, Mithrasree; Ayco, Ali; Ashraf, Turki; Raz, Li Hong - International Review of Research in Open and Distributed Learning, 2016

Students' performance in online learning environments is associated with their readiness to adopt a digital learning approach. The study's concept of readiness for online learning is connected with students' competencies of using technology for learning purposes. We in this research, however, investigated psychometric aspects of students'...

Disciplines: 3 (Social Intelligence Learning, Readiness, Electronic Learning, Psychometrics)

Peer reviewed

[Download full text](#)

#### Relationship between Online Learning Readiness and Structure and Interaction of Online Learning Students

Özcelik, Kaymak, Zeynep; İncöz, Mehmet Basim - Educational Research: Theory and Practice, 2013

Current study tried to determine whether a relationship exists between readiness levels of the online learning students for online learning and the perceived structure and interaction in online learning environments. In the study, cross-sectional survey mode was used. The study was conducted with 326 voluntary students studying on-line learning...

Peer reviewed

[Download full text](#)

[www.eric.ed.gov](http://www.eric.ed.gov)



**COMIE**

Consejo Mexicano de Investigación Educativa A.C.

**1996-2016**  
*20 años*

Revista Mexicana de  
**INVESTIGACIÓN  
EDUCATIVA**

Revista Mexicana de  
**INVESTIGACIÓN  
EDUCATIVA**

<http://www.comie.org.mx/revista/>

# Defrosting the Digital Library: Bibliographic Tools for the Next Generation Web

Duncan Hull<sup>1,2\*</sup>, Steve R. Pettifer<sup>2,3</sup>, Douglas B. Kell<sup>1,2</sup>



October 2008 | Volume 4 | Issue 10 | e1000204



PLoS Computational Biology | [www.ploscompbiol.org](http://www.ploscompbiol.org)



Search

## My Library

- All Documents
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- BEHE
- BMI Education
- Clinical Reasoning & ...
- E-learning
- EBU Education
- IRT
- MCOs
- MHPE**
- Research...

## MHPE

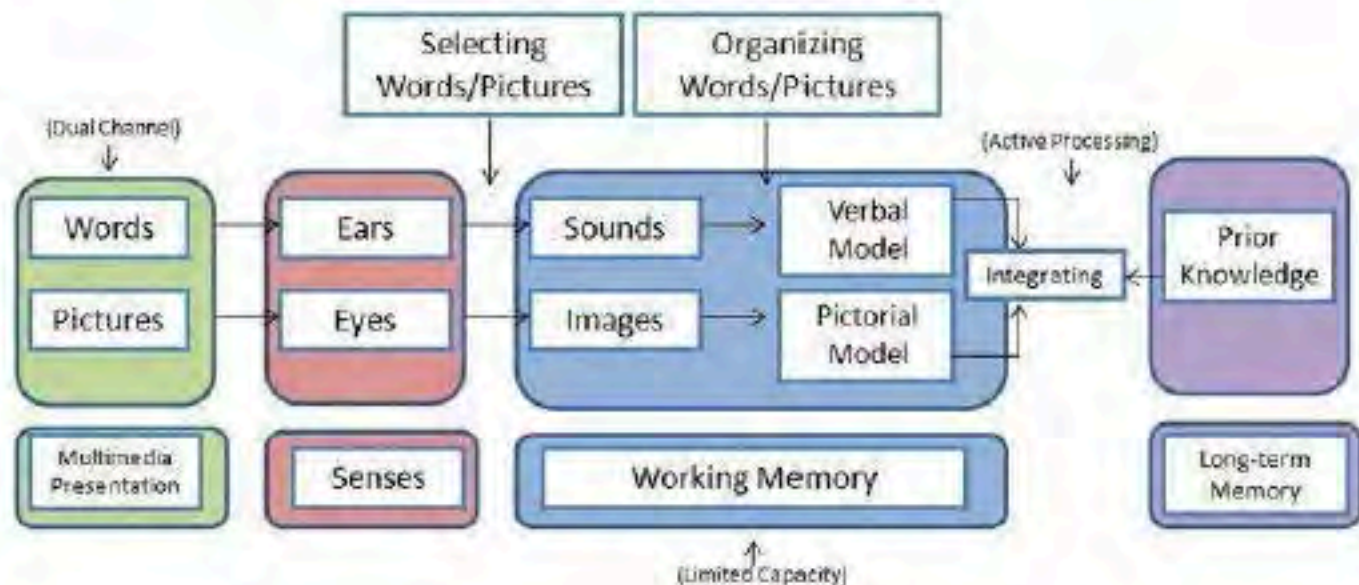
Select: 

-  A compendium of **higher education opportunities in health professions education**  
Michael D Casimiro, Mary Ann David (1998)  
Academic Medicine 73 (12) p. 1255-1259  
<http://journals.www.com/academicmedicine/abstract/199812...>  
[View in Mendeley Desktop](#)
-  A national survey of medical education fellowships  
Britta M Thompson, Nancy S Seale, Larry D Gruppen, Charles J Halem, Elizabeth A Nelson (2011)  
Medical education online 16 p. 2-5  
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid...>  
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-  A qualitative study of physicians' experiences with online learning in a masters degree program: benefits, challenges, and proposed solutions  
Liselotte Dyrbye, Annabelle Curnin, Hollis Day, Mitchell Heflin (2009)  
Medical teacher 31 (2) p. e40-6  
<http://www.ncbi.nlm.nih.gov/pubmed/19330663>  
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-  A qualitative study of physicians' experiences with online learning in a masters degree program: benefits, challenges, and proposed solutions  
Liselotte Dyrbye, Annabelle Curnin, Hollis Day, Mitchell Heflin (2009)  
Medical teacher 31 (2) p. e40-6

## Groups

No groups yet  
Find new groups

# Cognitive Theory of Multimedia Learning



**Mayer RE. Applying the science of learning to medical education. *Med Educ* 2010; 44:543-49.**

# Reducing extraneous processing

## ✓ Coherence Principle

- Extraneous information reduces learning

Mayer RE. Applying the science of learning to medical education. *Med Educ* 2010; 44:543-49.

## Transfusion Medicine: RBC Transfusion

### Evaluation of macrocytic anemia.

The first step is to exclude substance (alcohol) or drug (eg, hydroxyurea) use that is associated with macrocytosis.

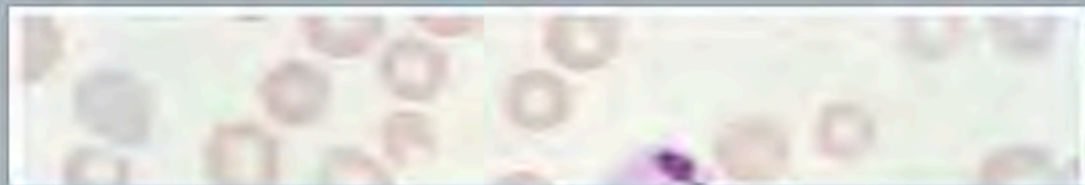
Similarly, in any patient with macrocytosis, B12 or folate deficiency must be ruled out. In folate deficiency, serum folate levels are usually low.

However, because recent dietary changes may affect the serum folate level, the serum homocysteine level may be used, instead, to evaluate folate deficiency (the serum homocysteine level is increased during folate deficiency as a result of impaired folate-dependent conversion of homocysteine to methionine).

Check out the "Did You Know?" fact and "clinical pearl!"

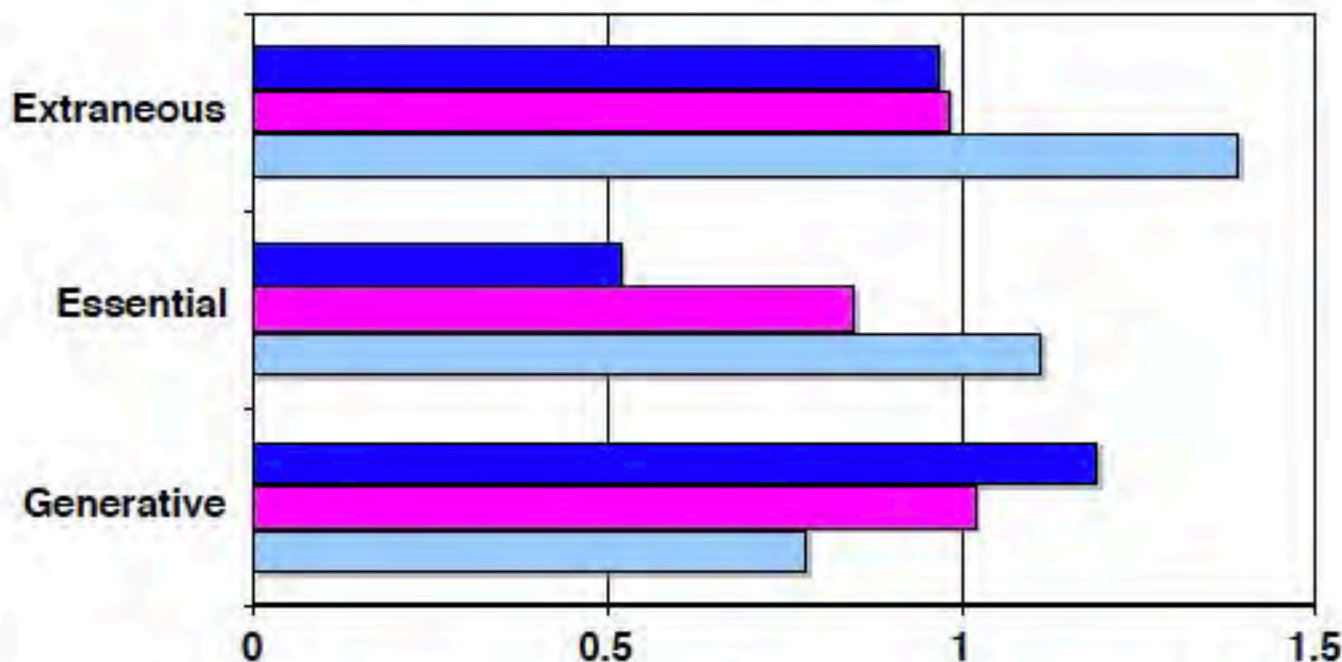
#### Did You Know?

Vitamin B12 is crucial for nervous system myelination, in addition to RBC formation.





## Effect sizes of using research-based principles of Multimedia Learning



Mayer RE. Applying the science of learning to medical education. *Med Educ* 2010; 44:543-49.

# **EBE model**



**Hederich C. Hacia una educación basada en la evidencia.  
Revista Colombiana de Educación, 2014; 66: 19-54.**

# Evidence-based education courses

- ✓ Nine courses in three years
- ✓ Almost 200 participants
- ✓ Teachers of the three levels
- ✓ Multiple types of papers (quanti, quali, mixed methods, meta-analysis)
- ✓ Varied themes
- ✓ Creation of a formal “community of learning”



[www.codeic.unam.mx](http://www.codeic.unam.mx)



## Comunidad de Educación Basada en Evidencias

USAMOS LA MEJOR EVIDENCIA DISPONIBLE

Conseguir la máxima calidad a partir del intercambio de experiencias y recomendaciones sobre el uso de la Educación Basada en Evidencias.



Descubre  
que es **la Comunidad EBE**

Un lugar de encuentro para que quienes han tomado cursos de Educación Basada en Evidencias (EBE) construyan comunidad, mediante el intercambio de experiencias, testimonios y recomendaciones acerca del uso de EBE.



[www.cebe.unam.mx](http://www.cebe.unam.mx)

# Activities of the Evidence-based Education Community



**Face-to-face**



**Online**

PERSPECTIVAS DE LA  
**INNOVACIÓN EDUCATIVA**  
EN UNIVERSIDADES DE MÉXICO:  
*Experiencias y reflexiones de la RIE 360*



**RIE 360**  
Red de Innovación Educativa



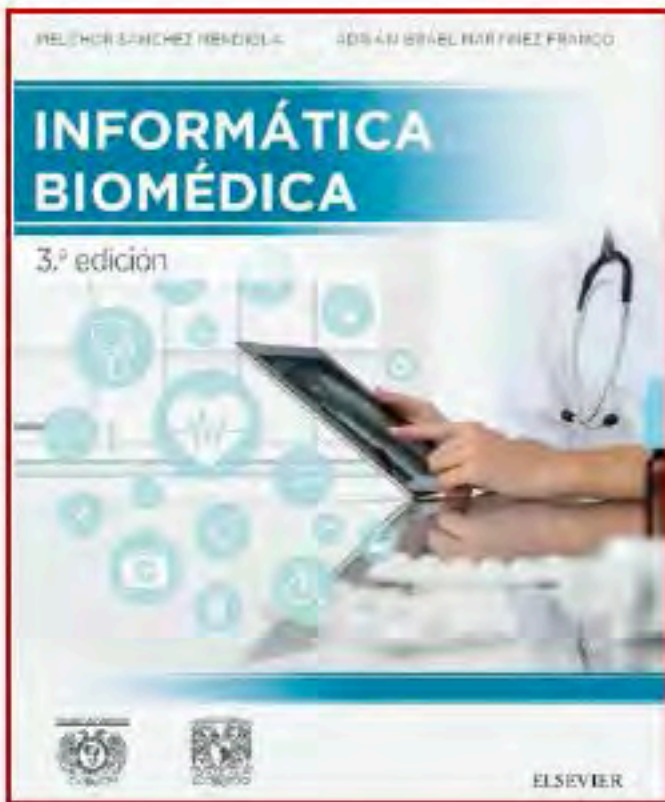
Coordinadores  
Melchor Sánchez Mendiola  
José Beramilla de los Santos

<https://www.codeic.unam.mx/index.php/perspectiva-de-la-innovacion-educativa-en-universidades-de-mexico-experiencias-y-reflexiones-de-la-rie-360/>

# Evaluación educativa del y para el aprendizaje en educación superior



[www.coursera.org/learn/evaluacion-educativa](http://www.coursera.org/learn/evaluacion-educativa)



**Sánchez Mendiola M, Martínez Franco I.  
FM UNAM-Elsevier. 3ª Ed. 2018**



# Investigación en Educación Médica

ISSN 1607-8471

Facultad de Medicina



Volumen 7, número 04, y febrero de febrero 2011



## Editorial

Los avances en educación médica se reflejan en el proceso y productos de investigación y en la calidad de la docencia.

## Artículos originales

Conociendo los conocimientos de medicina veterinaria prevalecientes de veterinarios asociados a la atención de salud.

Alfonso Hernández, et al.

Análisis educativo de arte las prácticas hospitalarias. El caso de dermatología.

Dr. José Hernández, et al.

Evaluación de competencias psicomotrices con un simulador virtual para el diagnóstico de una herida superficial.

Carla Patricia Martínez-Gómez, et al.

Impacto de un modelo pedagógico más estructurado apoyado con TIC para determinar conocimientos de medicina.

Carla Patricia Martínez-Gómez, et al.

Conociendo sobre infecciones asociadas a la atención sanitaria en docentes de una universidad mexicana.

Arturo Domínguez, et al.

Desarrollo del pensamiento crítico mediante la simulación de alta fidelidad en estudiantes de medicina.

Urbano de los Angeles Domínguez, et al.

Diagnóstico diferencial para el diagnóstico de medicina basada en evidencia en residentes de oncología de un hospital escuela.

Blanca Lucía Muñoz, et al.

Evaluación de los estándares de enseñanza en asignaturas investigativas - actividades de salud en un laboratorio.

Alfonso Hernández, et al.

## Artículo de revisión

Investigación traslacional en ciencias de la salud: integraciones educativas y roles.

Diego Francisco Domínguez, et al.

Artículo de metodología de investigación en educación médica: cómo realizarla en 2011?

Roberto Martínez Domínguez, et al.

## Cartas al Editor

<http://riem.facmed.unam.mx>



Editores:

*Melchor Sánchez Mendiola*

*Ana María del Pilar Martínez Hernández*



# Formación Docente en la UNAM:

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Antecedentes y la voz  
de su profesorado

<https://www.codeic.unam.mx/index.php/libro-formacion-docente-en-la-unam/>