

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

CH CENTER FOR INTERNATIONAL HEALTH  
Occupational and Environmental Epidemiology & Risk-Reducing Work  
Institute for Occupational, Social and Environmental Medicine

**Blended learning of occupational medicine –**

**Should it be local, national or international?**

Federal Ministry for Economic Cooperation and Development

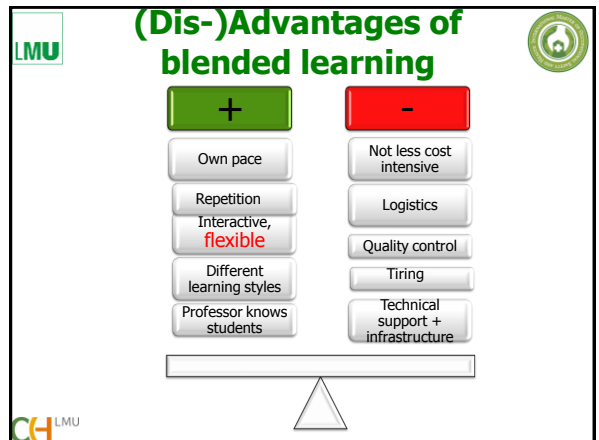
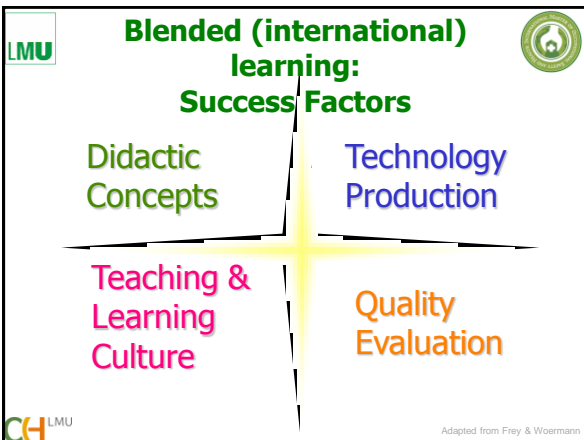
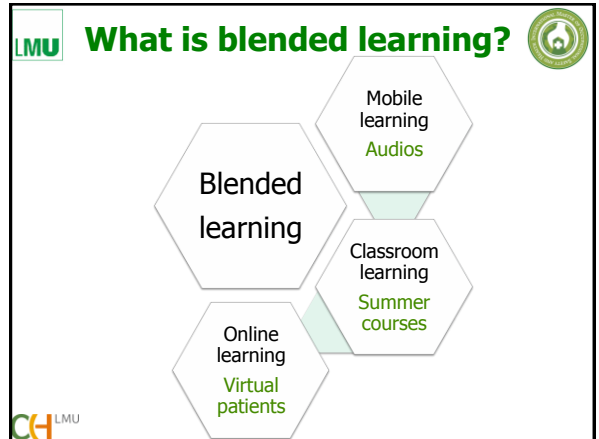
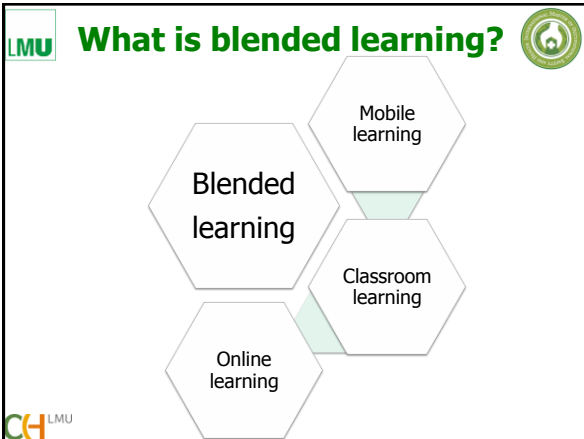
excellence centers FOR TEACHING AND DEVELOPMENT

DAAD

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**CONTENT**

- 1. Definition**
- 2. Dimension 1:** Target group
  - Undergraduates
  - Postgraduates / CME
- 3. Dimension 2:** Content
- 4. Target group X content matrix:** Local, national or international training?






**Blended learning:  
When should it be  
local, national, or international?**

**It depends!**





```

    graph TD
      A[It depends!] --> B[Target group]
      A --> C[Content]
  
```




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**Blended learning in OM –  
target group?**

- Undergraduates  
(nurses, medical students)
- Postgraduates
- CME

**Blended learning in OM –  
target group?**

- Undergraduates**  
(nurses, medical students)
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**Should undergraduates  
learn OM?**

**YES!!!!**

Basic occupational health services

Raise interest

Prevention and diagnosis  
of occupational injury and disease








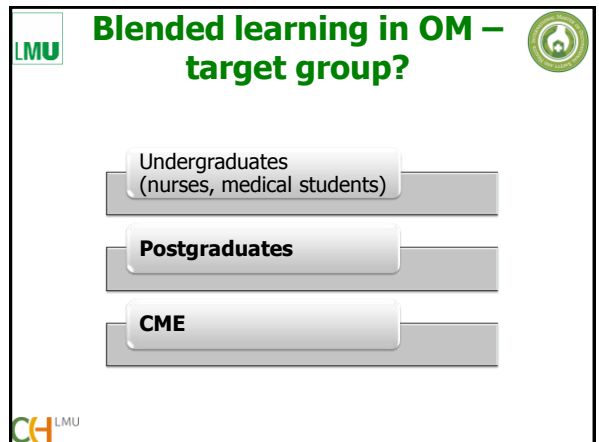
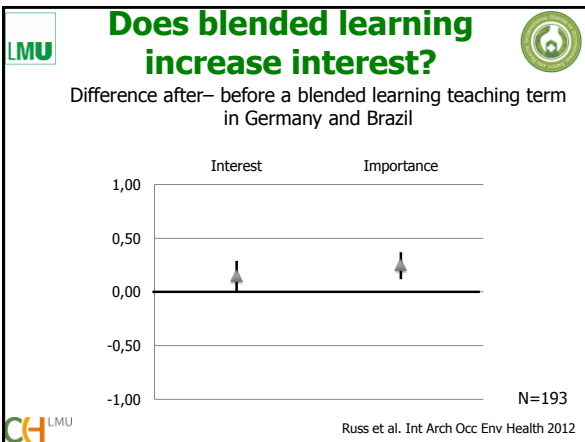
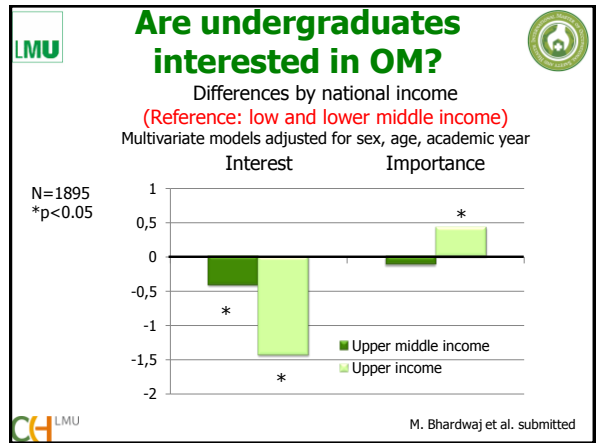
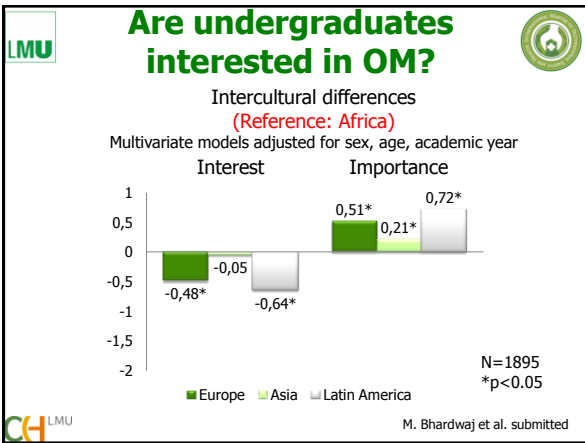
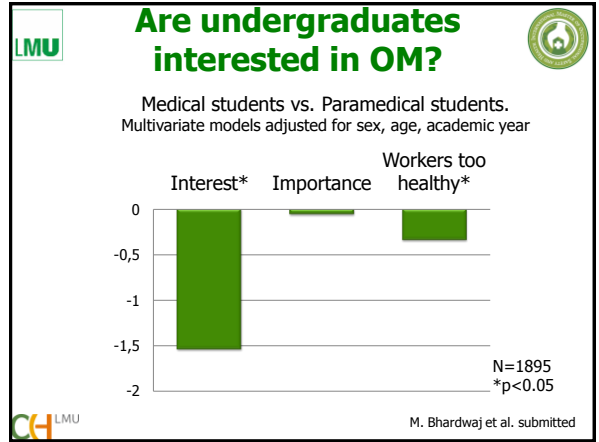
**Are undergraduates  
interested in OM?**

```

    graph TD
      A[31 Universities from 4 continents were randomly selected and invited for the study] --> B[2218 students from 21 Universities participated in the study]
      B --> C[321 students (1st & 2nd Academic Yr)]
      B --> D[1897 students (3rd to 6th Academic Yr)]
      C --> E((excluded by exclusion criterion))
      D --> F[2 students Age < 18]
      D --> G[1895 students Age ≥ 18]
      F --> H((excluded by exclusion criterion))
      G --> I((included into study))
  
```

M. Bhardwaj et al. submitted



LMU **Should postgraduates learn OM?**

**YES!!!!**

Postgraduate training **CME**

Interest + -

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LMU **CONTENT**

- 1. Definition**
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  - Postgraduates / CME
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LMU **Learning OM – Content**

- Basics
- Medical aspects
- Legal aspects
- Research

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LMU **CONTENT**

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LMU **Learning OM – Content**

- Basics**
  - International possible at all levels
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LMU **Learning OM – Content**

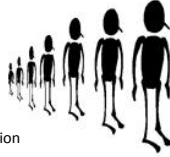
- Basics**
  - International possible at all levels
- Medical aspects**
  - International at postgraduate / CME level
  - National at undergraduate level
- Legal aspects**
- Research**

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## Virtualpatient-Work.Net OBJECTIVE

Set-up an international network to improve medical training in occupational medicine for

- Undergraduate medical students
- Postgraduate physicians / CME
- Occupational health nurses
- Health and safety inspectors
- Workers
- Teenager and adolescent at time of job selection



## Case structure

- Chief complaint
- History
- Occupational history
- Physical and technical examinations
- Diagnosis
- Prognosis

*parallel:*

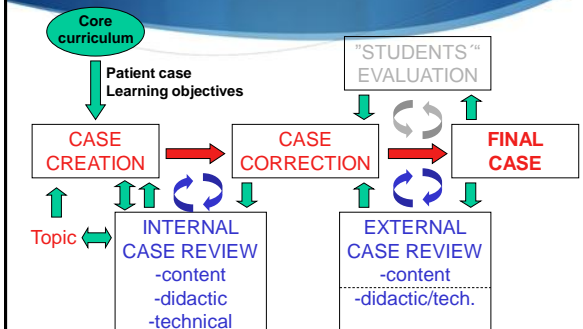
- Expert opinion
- Questions
- Answer comments
- Hyperlinks
- Background information

„red line“

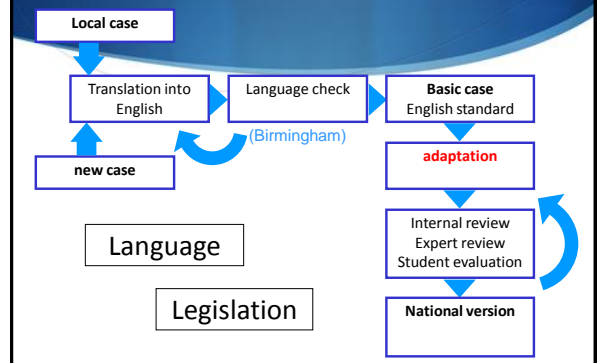
+

background

## Quality: Review and Evaluation

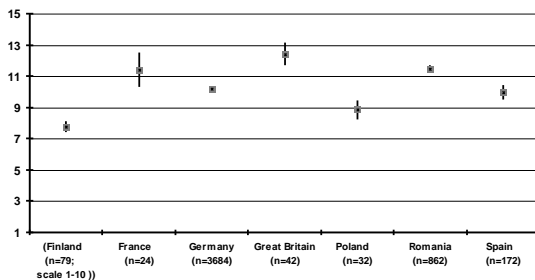


## THE CASE ADAPTATION PROCESS



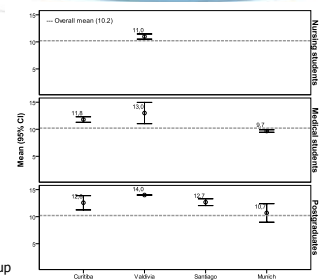
## Overall evaluation of adapted cases within the European project

1=poor; 15=excellent

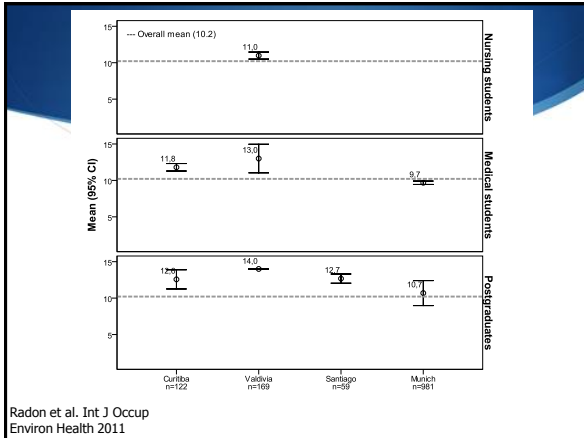


## Use of international virtual patients in three countries

Overall rating (0-15)



Radon et al. Int J Occup Environ Health 2011



## Learning OM – Content

- Basics**
  - International possible at all levels
- Medical aspects**
  - International at postgraduate / CME level
  - National (adapted) at undergraduate level
- Legal aspects**
  - International at postgraduate / CME level
  - National (adapted) at undergraduate level / GP-CME
- Research**

## Virtualpatient-Work.Net

Free Virtual Patients for Everyone.

A case-based e-learning platform for Occupational Medicine

## Summer school „Occupational health crossing borders“

*Real education doesn't mean giving knowledge, but urging the student to gain knowledge by himself.*

## Summer school „Occupational health crossing borders“

91% of former participants would strongly recommend participation in the course

| Most useful module (n≥10)                         | Participants N=70 n (%) |
|---|-------------------------|
| Enterprise visit                                  | 23 (32.9)               |
| Social system in developing countries             | 17 (24.3)               |
| Social system in (other) industrialized countries | 13 (18.6)               |
| Social system in Germany                          | 11 (15.7)               |

## Learning OM – Content

- Basics**
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- Research**
  - International




**LMU** **Teaching research via Project-based learning**

"Project-based learning is a model that organizes learning around projects."

Projects




- Complex tasks
- Challenging questions
- Students involvement in design, problem solving, decision making
- Opportunity to work autonomously over extended periods of time

(Thomas, 2000)




**LMU** **Example: Methods**

1. Selection of OSH professionals from Latin America
2. Development of a study protocol during a two week onsite course in Latin America
  - Research protocol
  - Assignment of local tutor
  - Study design and questionnaire given
3. Following 12 months to
  - Conduct field work
  - Analyse data
  - Online statistics course
  - Publish / write up a report

**LMU** **Example: Study design**

1. Cross-sectional study on working conditions and health
2. Following the protocol of the European Working Condition survey
3. Additional modules (respiratory health, ergonomics, stress)
4. Sample size: at least 100 in each group
5. At least one exposed and one unexposed group of workers
6. Preferably SMEs




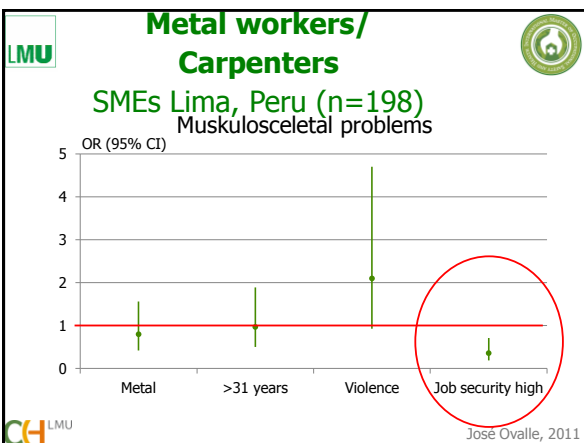
**LMU** **Example: Results**

**2010:**

- 29 protocols developed and approved
- 20 intended to continue
- 10 datasets + final reports (some of them pending)
- **Topics:** metal workers, miners, transport, child labour...

**2011:**

- 24 protocols developed and approved
- 10 intended to continue
- 8 ongoing, 1 loss to follow-up, 1 post-poned
- **Topics:** SMEs, discoteques, hospital staff, addicted workers, child labour, ...

**LMU** **When is international blended OSH training best?**

- **Lack of local experts for training**
  - Train the trainer concept
- **Training of global OSH experts**
  - for international enterprises
  - at governmental level





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## International Master of Science in Occupational Safety and Health -Application in Research and Practice-

- Two-year part-time, 60 ECTS
- Graduation with Master of Science (MSc)
- Working languages: Spanish and English



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## Summary

Blended learning of occupational medicine –  
Should it be local, national or international?



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Thank you!



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