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Information literacy in the context of Evidence-Based Medicine

Teaching and learning assessment of a course intended for 4th year students in medicine at the University of Liège (Belgium)

Nancy Durieux, Frédéric de Lemos Esteves, & Françoise Pasleau
(Life Sciences Library)



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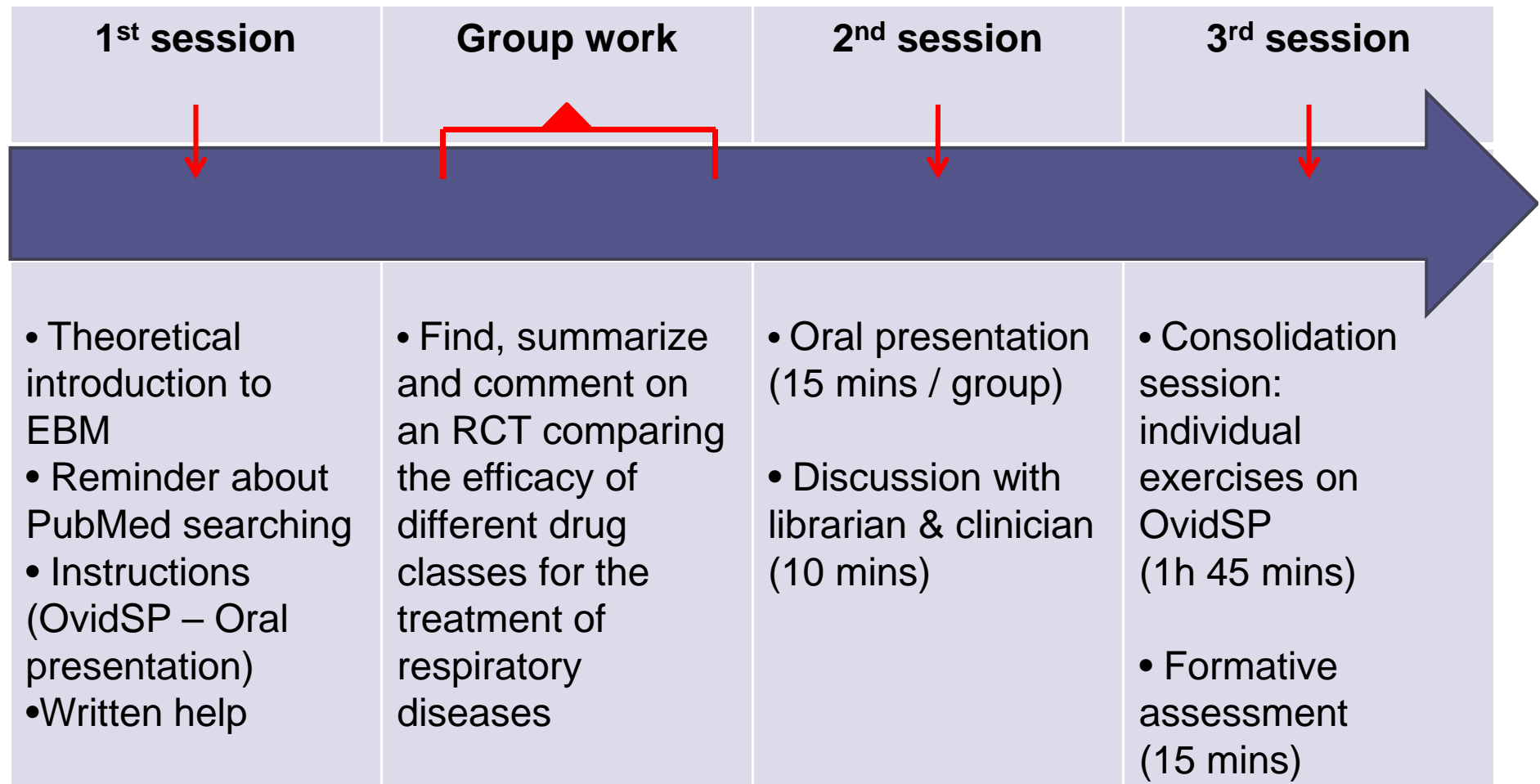
Evidence-Based Medicine course

- Held in the context of a workshop in pharmacology
- Intended for 4th year students in medicine
 - (7-year curriculum)
 - 154 students in 2011-2012
- Focused on search, selection and evaluation of scientific information
 - Librarian-Clinician collaboration

Objectives of the course

- At the end of the course, students should be able to
 - describe the basic principles of EBM
 - formulate an answerable clinical question
 - search and select relevant literature on Medline
 - summarize a clinical trial
 - argue for or against a particular therapy for the patient, based on evidence from the literature

Course framework (for 38 students)



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Questions

- Do EBM sessions improve students' information literacy?
- Are the teaching methods appropriate?

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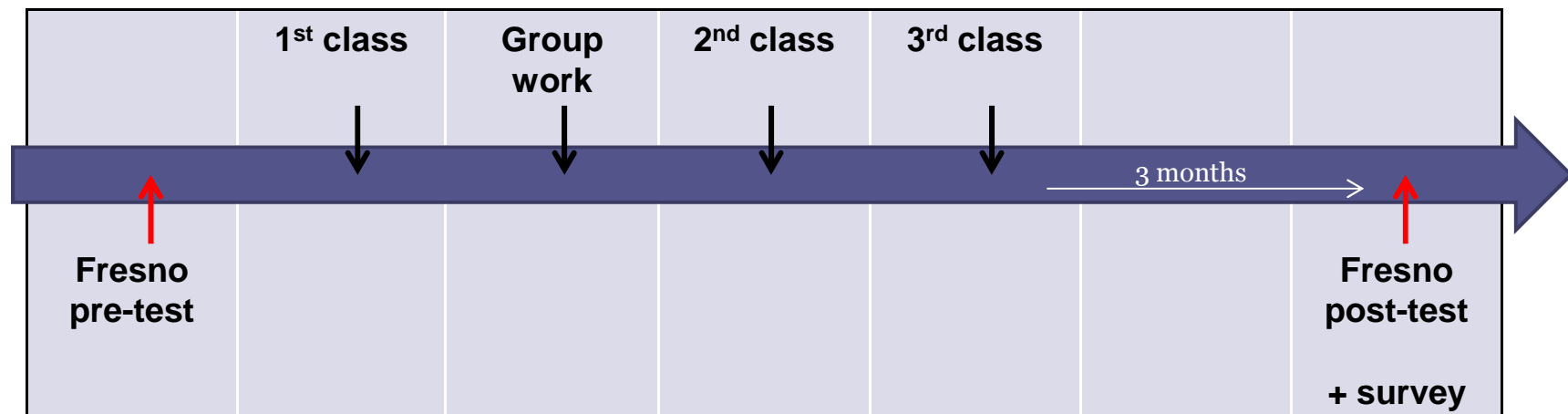
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Learning and teaching assessment (2011-2012)

- Fresno Test (Ramos *et al.*, 2003)
 - Translated into French
- Satisfaction survey



Fresno Test (Ramos *et al.*^[1])

- Two clinical scenarios
- 12 questions

7/12

- Clinical question for each scenario
- Information sources
- Best research design
- Strategy to be used on Medline
- Critical appraisal of an article

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- Mathematical calculations
- Best evidence for diagnostic and prognostic issues

- Scoring criteria

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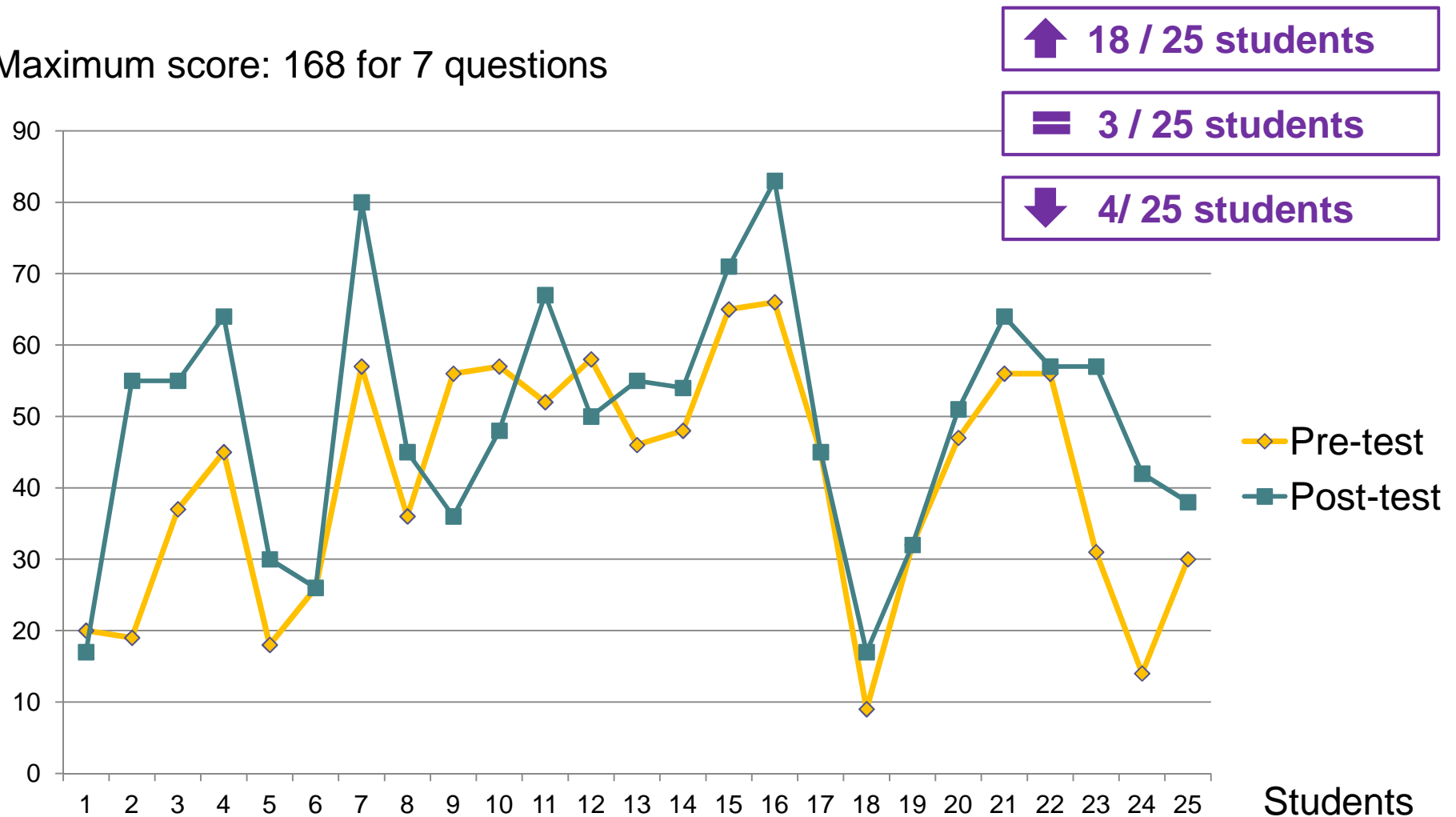
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Student participation

- 109 out of 154 students responded to both the pre-test and post-test
 - A sample of 25 students was considered

Evolution of students' scores

Maximum score: 168 for 7 questions



Average scores for each question

		Max	Pre-test	Post-test	
Q1 (clinical question)	●	/24	9.6	10.64	n.s.
Q2 (resources)	●	/24	10.32	7.44	p<.05
Q3 (design)	●	/24	3.24	8.76	p<.005
Q4 (Medline)	●	/24	10.04	12.48	p<.05
Q5 (relevance)	●	/24	1.36	1.20	ns
Q6 (validity)	●	/24	4.52	8.08	p<.05
Q7 (effect size)	●	/24	1.96	0.96	ns
TOTAL	●	/168	41	50	p<.05

Student satisfaction (n=23)

Work in groups

	No	Yes
Clear objectives	9 (39%)	14 (<u>61%</u>) ●
Clear instructions	5 (22%)	18 (<u>78%</u>) ●
Helpful guide	4 (17%)	19 (<u>83%</u>) ●
<hr/>		
Timing of consolidation session	23 (<u>100%</u>) ●	

Student satisfaction (n=23): Whole training

	No	Yes
Motivation	17 (<u>74%</u>) ●	6 (26%)
Attractive sessions	15 (<u>65%</u>) ●	8 (35%)
Teachers ready to help	2 (9%)	21 (<u>91%</u>) ●
Usefulness of the sessions	10 (43%)	13 (<u>57%</u>) ●
Usefulness for professional life	3 (13%)	20 (<u>87%</u>) ●

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Do EBM sessions improve students' information literacy?

- 2/3 of the students managed to improve their score in the Fresno Test
- Overall performance remained barely satisfactory

Factors influencing the scores

- Test organization
 - Post-test conducted 3 months after the course
 - Non certificated scoring (no "reward")
- Students' background
 - Previous introductory course in information literacy (15h Theory + 25h Practice)
- Teachers' attitudes
 - Little success in making the sessions attractive
 - Severity of scoring

Scoring: general remarks

- Not easy to score the Fresno Test
- Blind scoring by two raters independently
- Previous agreement about evaluation criteria
- Time and expertise required (Lewis *et al.*^[2]; Shaneyfelt *et al.*^[3])

Implications for the future

- Organizational change
 - Medline training session before group working
- Adjustment of the evaluation grid
 - Individual participation in the different tasks
- Much more time required
 - Transversal integration of EBM activities into other courses

Take-home messages

- 20 out of the 25 surveyed students thought that the EBM course would be useful for professional life
- Librarians can help medical students to gain the proper tools for EBM practice and lifelong learning

Thank you for your attention

References

- [1] Ramos KD, Schafer S, Tracz SM. Validation of the Fresno test of competence in evidence based medicine. BMJ. 2003;326:319-21.
- [2] Lewis LK, Williams MT, Olds TS. Development and psychometric testing of an instrument to evaluate cognitive skills of evidence based practice in student health professionals. BMC Med Educ. 2011;11:77.
- [3] Shaneyfelt T, Baum KD, Bell D, Feldstein D, Houston TK, Kaatz S, et al. Instruments for evaluating education in evidence-based practice: a systematic review. JAMA. 2006;296:1116-27.