New Teaching Methods

preparing the veterinary student for the future
Evidence for the effects of new educational methods

- Research in (veterinary) education = challenging:
  - No experimental design / no double blind / difficult to find a reliable control group
  - Design based research
  - Retrospective analysis
  - Propensity score matching
Outlines

- Competencies ➔ Development & Implementation

- Didactical methods
  ➔ Active learning / Relevant content
  ➔ Theoretical courses / Workplace learning

- Learning ↔ Assessment
  ➔ All competencies
  ➔ Feedback

- Personal development
  ➔ Students AND teaching staff
Competency Frameworks

- RCVS Day 1 competencies (2001 ➔ 2014)
- NAVMAC Roadmap…. (2011)
- OiE Competencies ‘Day 1 Graduates’ (2012)
- VetPro Competency Framework (2011 & 2014)
- Attributes expected… Walsh; 2001 & 2002)
- Others…..

Development VetPro Competency Framework

Focus groups:
- 3 groups recently graduated (0.5-5 year) practitioners (n=25)
- 1 group recently graduated (0.5-5 year) non-practitioners (n=10)
- 2 groups of animal owners (CA/Equine and Farm animals) (n=19)

Draft Competency Framework:
- 7 domains / 18 competencies

Delphi procedure – expert panel:
- 29 veterinarians and stakeholders,
  representing the different sectors in the veterinary profession

International validation:
- 10 countries
- practitioners / non-practitioners / stakeholders; n=1137

Harold GJ Bok et al., JVME 2011; 38(3):262-269
Harold GJ Bok et al., JAVMA 2014; 245(8): 906-913
Perceptions competencies international
Competency Domains: VetPro

- 7 Competency domains
- 18 Competencies
- An integrated Framework
- From generic to specific
- In alignment with detailed program outcomes learning objectives
Defined Outcomes / Competencies

- Necessity for ‘relevant content’
  - Detailed Program Outcomes
    - Learning objectives for every course / didactic format

- Competency-based education
  - To develop competencies
    - Necessity for ‘active learning’
Competency-based education

- Commitment to outcomes = emphasis of abilities
- Promotion of learner-centredness
- Focus on student-centred, active learning methods
- Focus on frequent feedback and formative assessments
- Mechanism to promote lifelong learning continuum

Jason R Frank et al., Medical Teacher 2010; 32: 638-346
Social-constructivism ➔ Active learning formats

Small group, activating education and workplace based learning has proved to be more effective for deeper learning

- Problem-based learning
- Team-based learning
- Hybrid curricula, with a focus on
  - Seminars
  - Tutorials
  - Workshops
  - Assignments
  - Practicals’
- Workplace learning

Learning = Doing

Tell me and I will forget
Show me and I will remember
Involve me and I will understand
Step back and I will act

Kung Fuzi (Confucius), 551-479 B.C.
Optimal curriculum to promote ‘active learning’

- ‘Contact hours’ versus ‘self study hours’ = 25% : 75%
- Number of lectures
  - negatively related with self-study time & graduation rate
  - positively related with study duration
- Number of tutorials
  - No influence on self-study time

Henk Schmidt et al, Higher Education, 2010; 60: 287-300
Active learning in a Coherent curriculum

- Learning Objectives (based on Outcomes / Competencies)
- Lecture(s)
- Self study (well organized and planned)
- Seminars / Tutorials / Workshops and/or Practical’s
- Self study
- Assessment (in line with learning objectives)

Role of e-learning = e-teaching / e-learning / e-assessment
Active learning in small groups

• Twelve tips for effective small-group teaching in the health professions;
  • Yvonne Steinert, Medical Teacher 1996; 18(3): 203-207

• Twelve tips for implementing whole-task curricula: How to make it work;
  • Diana H.J.M. Dolmans et al., Medical Teacher 2013; 35(10): 801-805

• Exploring seminar learning in relation to students, teachers and context;
  • Annemarie Spruijt, PhD Thesis Utrecht, september 2014

• Scaffolded active learning: Nine Pedagogical principles for building a modern veterinary curriculum;
  • Stephen A. May, Ayona Silva-Fletcher, JVME 42(4): 332-339
Relevant context of the profession

• more effective learning in a curriculum in which theory is related to relevant context

How:
• Vertical integration of basic sciences and clinical disciplines = ‘Integration of healthy and diseased’
• Addressing non-technical competencies in all courses / parts of the curriculum
• Workplace learning / clinical clerkships intertwined with ‘theory’

Cox, Medical Education, 2001; Anderson et al, Educational Researcher, 1996
Bok, PhD Thesis, Utrecht University, June 2014
Relevant context:
relation between competencies Scholarship & Veterinary Knowledge

How to address Evidence-based Veterinary Medicine?

- Group tasks, from year 1 on = integration with Communication & Collaboration, fosters Personal development;
- Evidence-based case reports, during Workplace learning
- (P.M. Research period)
How to assess competencies?

⇒ Climbing the pyramid

**Behavior**

- **Do**
  - Daily patient care: assessed by direct observation in clinical settings (performance)

- **Shows how**
  - Demonstration of clinical skills: tested by OSCE, standardized patients, clinical exams, etc. (competency)

- **Knows how**
  - Application of knowledge: tested by clinical problem solving, etc.

**Cognition**

- **Knows**
  - Knowledge: tested by written exams
Competency-based education requires ➤
Coherent, valid and reliable system of coaching, feedback and assessment

➤ Students have the right to learn, and to get feedback

• Feedback and ‘feed forward’ stimulates reflection and active learning
• Professional growth and academic development will be fostered

Boud and Falchikov, Assessment and Evaluation in Higher Education, 2006; Ericsson, Academic Medicine, 2004; Hattie and Timperley, Review of Educational Research; Van der Vleuten and Schuwirth, Medical Education, 2005

➤ A model for programmatic assessment fit for purpose
Van der Vleuten, Schuwirth, Driessen et al; Medical Teacher 2012; 34(3): 205-214
Feedback and assessment instruments in a Competency-based curriculum

A balanced combination of formative and summative

In line with the different aspects of the competencies

- Skills: Objective Structured Clinical Examination (OSCE)
- Workplace: Mini-Clinical Examination (MiniCEX), DOPS
- Knowledge & Insight: Written exam / Script concordance test
- Personal development: Portfolio

Competency based:

- all competencies are addressed in the formative feedback instruments at workplace learning, and loaded in a portfolio

- The mix of rich formative assessments in the portfolio is the base for a summative (final) assessment
Development study: Masterprogramme development, implementation and evaluation
From Theory to Practice

Assessment program FVM Utrecht = Workplace learning in a 3-year Master degree

- Mini-CEX (supervisors and peers)
- Multisource feedback
- Evidence based case report
- Personal development plan
- Assessments of knowledge, skills

Focus on feedback
(assessment for learning)

High-stake assessment
(assessment of learning)
Competency-based Assessment program

(Clinical) clerkships / Workplace

- Mini-CEX (supervisors & peers)
- Multisource feedback
- Evidence based case report
- Personal development plan

➡️ E-portfolio

➡️ Intermediate assessment (mentor)

✓ High-stake assessment
Overview of Competency development in the e-portfolio
Twelve Tips

12 Tips for Programmatic Assessment

C.P.M. Van der Vleuten1, L.W.T. Schuwirth2, E.W. Driessen3, M.J.B. Govert5 & S. Heeneman1
1Maastricht University, Maastricht, The Netherlands, 2Flinders University, Adelaide, Australia

Abstract

Programmatic assessment is an integral approach to the design of an assessment program with the intent to optimise its learning function, its decision-making function and its curriculum quality-assurance function. Individual methods of assessment, purposefully chosen for their alignment with the curriculum outcomes and their information value for the learner, the teacher and the organisation, are seen as individual data points. The information value of these individual data points is maximised by giving feedback to the learner. There is a decoupling of assessment moment and decision moment. Intermediate and high-stakes decisions are based on multiple data points after a meaningful aggregation of information and supported by rigorous organisational procedures to ensure their dependability. Self-regulation of learning, through analysis of the assessment information and the attainment of the ensuing learning goals, is scaffolded by a mentoring system. Programmatic assessment-for-learning can be applied to any part of the training continuum, provided that the underlying learning conception is constructivist. This paper provides concrete recommendations for implementation of programmatic assessment.

PhD Thesis

Competency-based Veterinary Education

An integrative approach to learning and assessment in the clinical workplace

Programmatic assessment of Competency-based workplace learning: where theory meets practice, Bok et al.,; BMC Medical Education 2013; 13: 123
Further tools for competency-based assessment and decisions

- **Entrustable Professional Activities (EPA’s)**
  - Wijnen, BMC Medical Education 2015; 15:229

- **E-portfolio’s ➔ lifelong learning / continuing professional development ➔ whole working life !!**
  - Watling et al., Medical Education 2012; 46(): 192-200
  - Driessen, Advances in Health Sciences Education DOI 10.1007/s10459-016-9679-4

- **Mentoring in personal development**
  - Mastenbroek et al, BMC Veterinary Research 2015; 11:311
Personal development

- Fostering personal resources:
  - Reflective skills and practice
  - Self-efficacy & Optimism
- Supports well-being and work engagement
  Mastenbroek et al, BMC Veterinary Research 2015; 11:311

- ‘Personal development’ in the curriculum = individual approach
  - Individual mentoring & tutoring
  - Peer feedback meetings + tutor
  - Personal Development Plans → Individual (e-)portfolio
Be FAIR to students:
*Four principles that lead to more effective learning*

- Feedback
- Activity
- Individualisation
- Relevant for outcomes

Harden & Laidlaw, Medical Teacher 2013; 35: 27-31
Thank you for your attention

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