showed that such “blended” learning results in faculty should be to coach students while they critical clinical thinking). A proposed “new” role of despite information available via the Internet, the clinical years (Herron et al, 1992). Decades later, Veterinary Internet Content Exchange (VetICE) is develop and/or review materials supporting self-retention, hopefully the goal of every educator. Traditional lecture-based veterinary curricula result in learning in the classroom. OBSERVATIONS AND PREMISES: Greater stickiness is necessary for all instruction 21st century professional students seek more engagement, which should enhance long-term retention (Fig. 1) Faculty can no longer teach everything necessary to an entry-level graduate Most veterinary programs lecture-based and content driven (Figs. 2 and 3) particularly at the pre-clinical level With more non-veterinary instructors in the pre-clinical years, it is becoming administratively more difficult to balance the need for breadth of instructional expertise, while sustaining necessary depth of research experience.

HOW DO WE EXPECT STUDENTS TO LEARN? This presentation is largely a philosophical “call to action” based upon findings of educational research on young adults, with a suggestion for collaborative sharing of best practices and materials for enhancing active learning in the classroom.


SCANNING CURRENT TRENDS AND BEST PRACTICES IN MEDICAL EDUCATION LITERATURE Dept. of Education Meta-Analysis1 900 higher education studies from 1996-2008 with learning outcomes Learning in purely online vs. purely face-to-face conditions were statistically equivalent Online together with face-to-face instruction led to greater learning than did purely online instruction (+0.35, p < .001). Veterinary Student Learning Styles2 Balanced approach to teaching is essential to allow all students to learn optimally PBL vs. Traditional Medical Students12 PBL Students: Rough transition into medical school, but following adaptation, they embraced the independence and responsibility for their own learning. Better able to channel their motivation into effective transitions from the classroom into clerkships Traditional Students: Reluctant on faculty to direct and control learning Channeled their motivation toward achieving highest grade Not as prepared for clinical faculty expectations of independence and self-direction of learning Call to Action: Stanford Medical Professor and Salman Khan of Khan Academy21 Propose new model for medical education based on flipped classroom design Creation and adoption of model would be enhanced by cooperative efforts between schools


REFERENCES AND LINKS

PUBLICATIONS
7. European veterinary schools initiated the sharing of learning materials through WikiVet and NOVICE, Veterinary technician schools employ learning modules shared via VetMedTeam, Veterinary Internet Content Exchange (VetICE) is soon being reconfigured by VetMedTeam as a repository of learning materials with linked relevant learning objectives. A database of 5-15 minute video modules is being proposed, modeled after those on Khan Academy or TED Ed, and of related classroom problems/cases such as those developed with web-based tools at When Knowing Matters. Interested content experts are being sought to develop and/or review materials supporting self-driven learning, leading to greater long-term retention, hopefully the goal of every educator.

CONCLUSIONS

Call to Action: Stanford Medical Professor and Salman Khan of Khan Academy11 Propose new model for medical education based on flipped classroom design Creation and adoption of model would be enhanced by cooperative efforts between schools

BEST PRACTICES IN ACTIVE LEARNING Types of Material “off-loaded” from classroom Short (5-15 min) context videos with progress quizzes4 to allow instructor to focus on most conceptually difficult topics Individual case problems or case analysis which will be further discussed in class: e.g. Assessment exercise developed with When Knowing Matters software6 Current scientific literature for discussion within the class7 Reading textbooks!!! electronic or paper Types of Possible Classroom Activities Problem-based analysis demonstrations by instructor Micro-lectures with ticker questions13 Pair-and-share activities within classroom13 Small group discussions to compare understanding before full class discussion Research-based and planning presentations or videos to share Developing Best Practices for Videos Short: 5-15 minutes to match attention span14 Good quality audio is crucial15 Planned, scripted, but informal to simulate one-on-one instruction16 Include learning objectives, progress questions and suggested reading Active video of instructor might be limited to brief introduction, otherwise should not distract from matched visuals with audio17 Engagement increases when audio, drawings and animations are synchronized Be sure to replace copyrighted material, or seek permission for use, if intent is to publish openly

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