

**The use of a learning game:
Trot to Trophy,
in Equine Science**

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ANS 110: Introduction to Equine Science

- Introduction to Equine Science is a course designed for freshmen and sophomores of any major.
- We discuss terminology, impact of horses on history and society, breeds, management, genetics, reproduction, health, nutrition, behavior, riding, and business aspects of the horse industry – *Horse 101*
- Natural Sciences - General Education Program

Challenges

- Wide range of equine background and experience



Results from 176 students, 2 semesters of teaching.

Digital Game-Based Learning

- Active learning
- Enhance learning and motivation
- Enhances retention
- Appeals to millennial students – “Digital Natives”

- Math, Physics, Natural Sciences, Nursing, Architecture...

- M. Ebner, A. Holzinger Successful implementation of user-centered game based learning in higher education: an example from civil engineering *Computers & Education*, 49 (3) (2007), pp. 873–890
- C. Brom, M. Preuss, D. Klement Are educational computer micro-games engaging and effective for knowledge acquisition at high-schools? A quasi-experimental study *Computers & Education*, 57 (3) (2011), pp. 1971–1988
- L. Boctor Active-learning strategies: The use of a game to reinforce learning in nursing education. A case study. *Nurse Education in Practice*. 13 (2) (2013) pp 96-100
- R. Van Erk. Digital based learning. Its not just the digital natives who are restless... *Educause*. 41 (2) (2006)

Digital Game-Based Learning

- Agriculture?
- Pfizer/Zoetis – Walking the Pens
- Not a substitute for teaching
 - Supplement



- J. C. Bunch, J. Shane Robinson, M. Craig Edwards, and Pavlo D. Antonenko How a Serious Digital Game Affected Students' Animal Science and Mathematical Competence in Agricultural Education 2014 Journal of Agricultural Education, 55(3), 57-71.

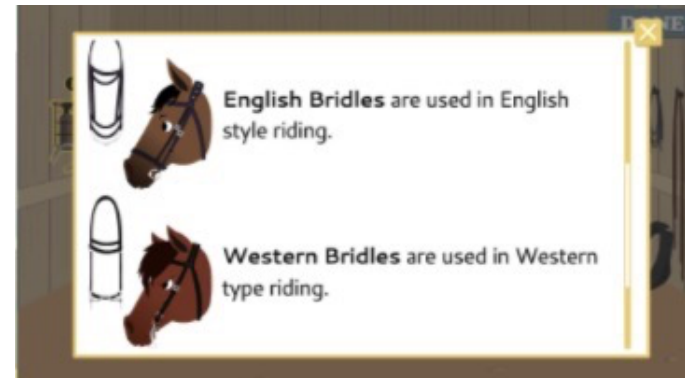
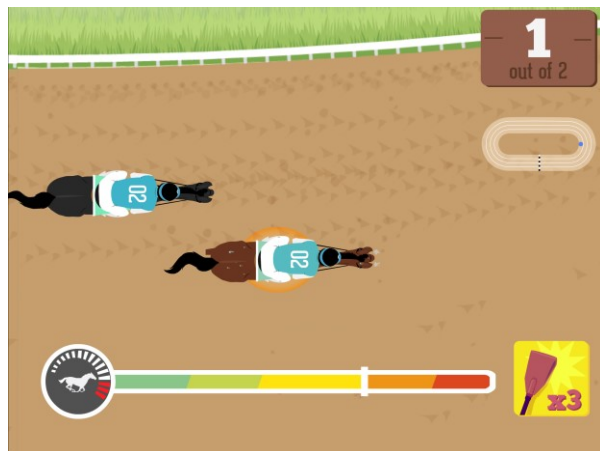
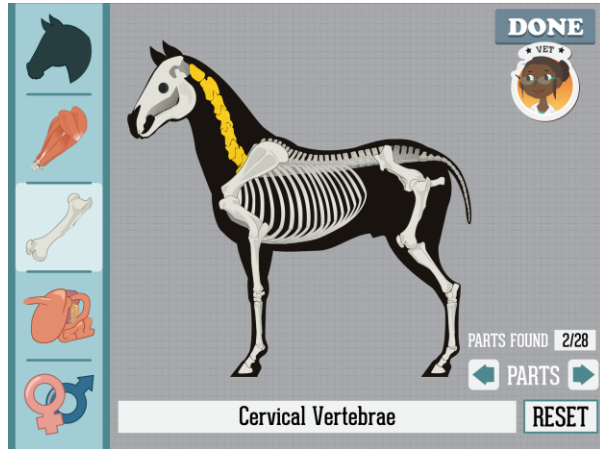
Trot To Trophy

- Designed to provide an interface to enhance the learning experience for students with little to no equine background as well as to provide a fun practice tool for those with more extensive equine backgrounds




<https://trottotrophy.ncsu.edu>

Mix of Educational Material and Fun Games



Educational Material

- General education
 - Anatomy
 - External
 - Bones
 - Muscles
 - Reproductive
 - Digestive
 - Course materials
 - Breeds
 - Colors
 - History
 - Genetics
 - Etc.
- Games based education
 - Nutrition
 - Stall cleaning
 - Grooming
 - Tack
 - Preventative health care



Pastor Pastern asks:

What disease is zoonotic (can also infect humans)?

460€


20/20

Rhinopneumonitis

Rabies

EPM

Strangles



Garret the Foal Whisperer asks:

What disease is found in Arabians that affects their immune system?

300€

14/20

Lethal White Foal Syndrome

EIPH

HYPP

SCID



Pastor Pastern says:

Bless you, child!

Rabies


CORRECT!

Rabies virus infects the central nervous system and is usually transmitted through a bite.

490€

20/20

FINISH



Garret the Foal Whisperer says:

The voices agree.

SCID

CORRECT!

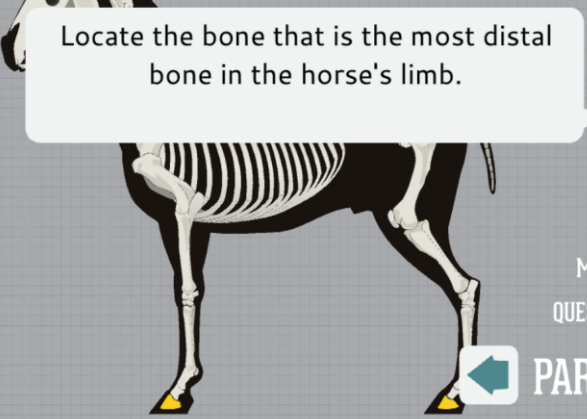
Severe Combined Immunodeficiency is a genetic condition that results in the death of the Arabian foals.

330€

14/20

NEXT

Locate the bone that is the most distal bone in the horse's limb.



★ VET ★

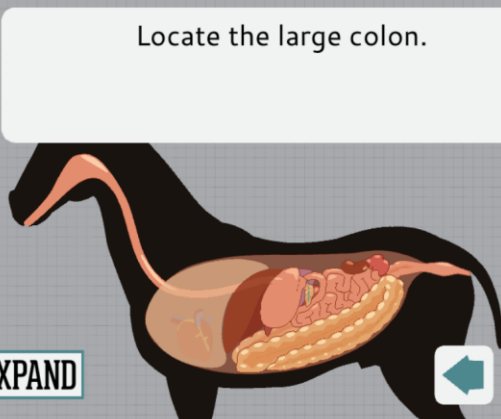
MONEY 84€

QUESTION 9/10

EXPAND CONTRACT PARTS SUBMIT

♀

Locate the large colon.



★ VET ★

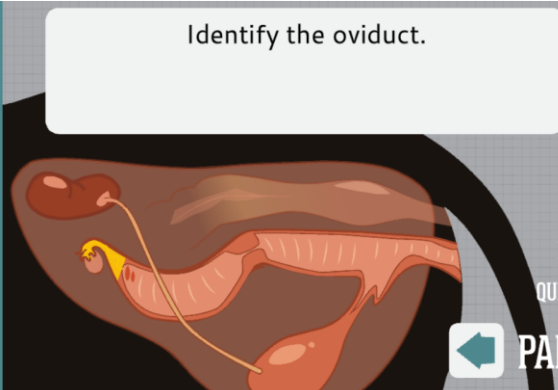
MONEY 000€

QUESTION 1/10

EXPAND CONTRACT PARTS SUBMIT

♀

Identify the oviduct.



★ VET ★

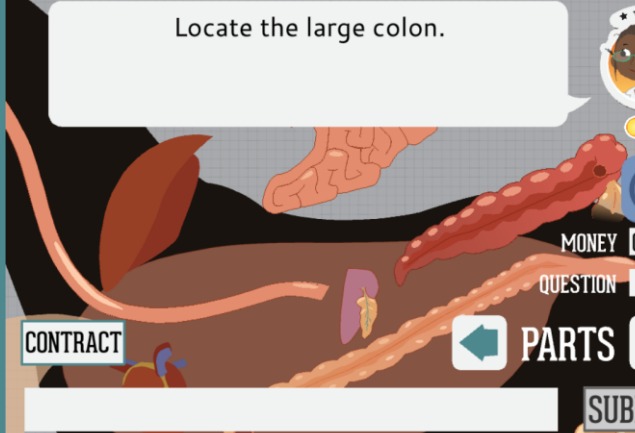
MONEY 000€

QUESTION 1/10

EXPAND CONTRACT PARTS SUBMIT

♀

Locate the large colon.



★ VET ★

MONEY 000€

QUESTION 1/10

EXPAND CONTRACT PARTS SUBMIT

♀

Do the students use it?



Methods

- Fall semester, 2015
- 70 students surveyed

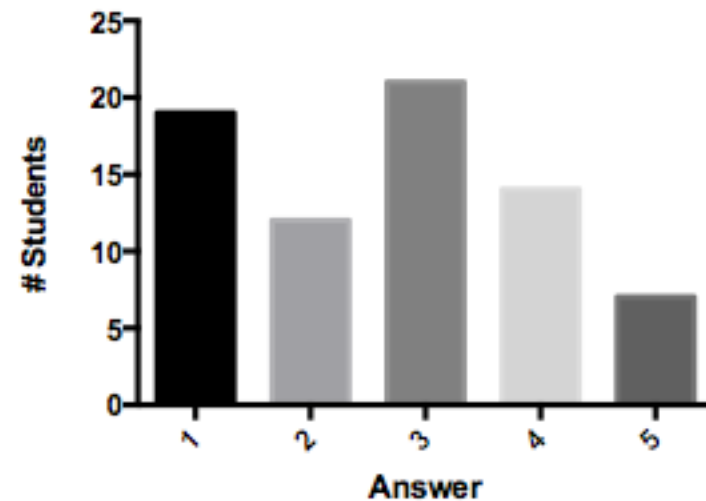
- Likert-type scale

Questions

- Rate how often you have used/played Trot to Trophy
- Do you think Trot to Trophy *enhanced your education about horses*
- Do you think Trot to Trophy helped you earn a higher grade in this class?
- Do you think learning apps can be useful in your education?

How often Trot to Trophy was used/played

- 1 – Didn't play at all
- 5 – Played extensively
- 27% of students didn't play at all 😞



Do you think Trot to Trophy enhanced your education about horses?

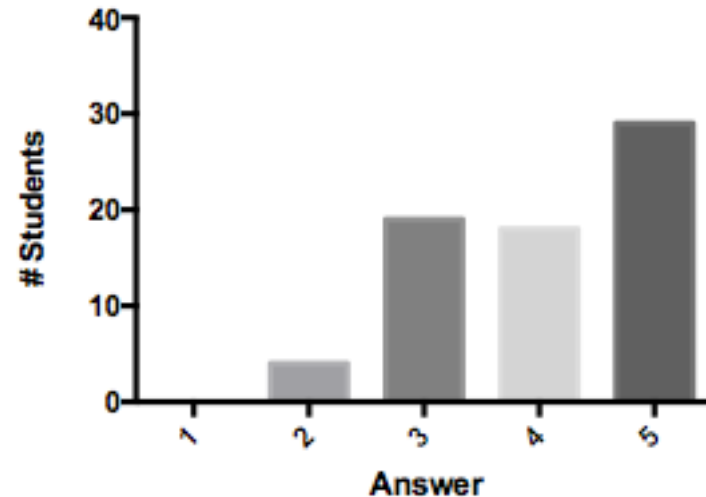
- 24/51 remaining students (47%) answered 4 or 5

Do you think Trot to Trophy helped you earn a higher grade in this class?

- 19/51 remaining students (37%) answered 4 or 5

Do you think learning game apps are useful in your education?

- 67% responded positively



Discussion

- Disappointing number of students never tried it
 - Rate of learning – and use of games for learning – associated with motivation
 - No obvious extrinsic reward
 - Students might not have any intrinsic interest

Discussion

- Of those who did play
 - Enhanced learning about horses
 - Saw some improvement on grade

Conclusion

- Games have the ability to enhance the learning opportunity for students
 - Should be a blend of education and enjoyment
- Work to increase use of game
 - More direct similarity between game and course material?
 - Bonus points for completion of levels?

Thank you!

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