



EGAS MONIZ SCHOOL
of HEALTH & SCIENCE



HistoQuiz “An Innovative Approach to Teaching Histology”

Animal Organism III “From Tissue to Organism”, 1st year, 1st semester - Veterinary Medicine / Biomedical Sciences

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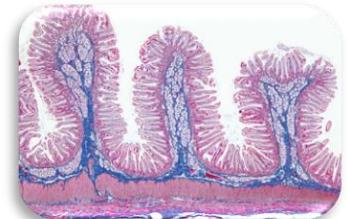
5th Pedagogical Innovation Seminar | 17th December 2025

What are the Tutorial Guidance classes?

- Training session where the focus is on **competence development** through **problem solution** or **project execution**.



- Focused on the student
- Problem-based learning
- Project or challenge-based learning
- Gamification
- Competence development
- Guidance and feedback



Our Goal: **Tutorial guidance class** on **basic histology** learning:
“Identifying cells and tissues”

Using **active learning** methodology

HistoQuiz

- **Student-centered creation, review, and use of multiple-choice questions**
- Structured into **4 sequential and easily replicable phases**
- Applicable to **curricular units with morphofunctional** or strong **conceptual content**
- Enhances **understanding of tissue structure and function**
- **Reinforces morphofunctional reasoning** + histological technique mastery
- Promotes identification of key microscopic features and system specific characteristics
- Uses digital images to support accurate microscopic interpretation
- Stimulates **critical thinking, content integration, autonomy**, and transversal competencies relevant to Veterinary Medicine and health sciences



1st Phase – Question Design



2nd Phase – Cross Review

- Students organized into groups of 5
- **Each group assigned a specific tissue, organ, or system**
- **Mirror groups**
- **Formal guidelines** provided for writing multiple choice questions
 - Clarity & relevance
 - Absence of ambiguity
 - Coherence between stem and answer options
- Each **group creates 30 questions**
 - Three levels of difficulty
 - Four answer options
 - One correct answer only
- **Teaching staff guidance**
 - Positive and negative examples
 - Concise guide to common errors

- Questions sent to a previously designated **mirror group**
- **Cross review conducted by peers**
 - Identification of **conceptual errors**
 - Assessment of **terminological accuracy**
 - Evaluation of **difficulty level**
 - Clarity of the stem and answer options
- **Written feedback provided to the original group**
- **Group discussion to promote**
 - Scientific argumentation
 - Critical thinking
- **Teaching staff intervention when necessary**
 - Correction of misconceptions
 - Reinforcement of quality criteria

3rd Phase - Question Bank and Autonomous Study

- All validated questions uploaded to the Moodle
- Questions organised by Tissue or System / Level of difficulty
- Enables autonomous, structured, and targeted study



4th Phase - Assessment and Evaluation

- Practical mini-test composed exclusively of student generated questions
- Question selection performed by teaching staff
 - Ensures thematic diversity
 - Balanced difficulty levels

Assessment and Implementation

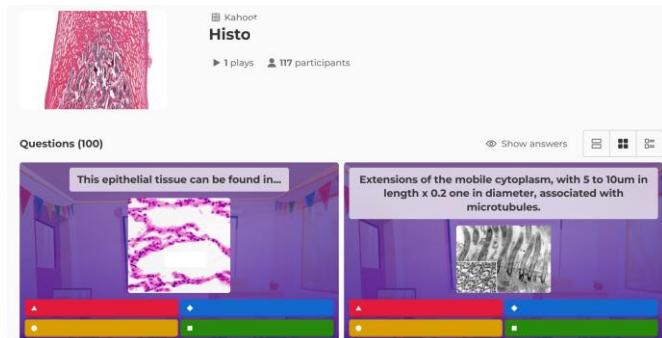
- Quality of student created questions and peer reviews
- Individual performance in the final test

Requirements for Replication

- Learning management system and question writing guide
- Teaching staff supervision with structured time for creation and review

Educational Outcomes

- Promotion of active learning and conceptual consolidation
- Shared responsibility and development of critical competencies



Evaluation of the HistoQuiz Pedagogical Practice

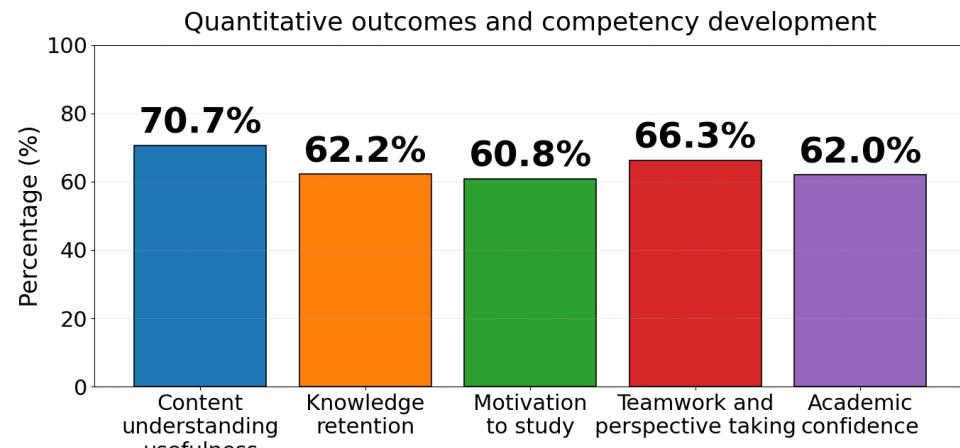
n=107 students

Evaluation method

- Anonymous student questionnaire
- Likert scale items + open-ended questions

Dimensions assessed

- Understanding of histology content
- Motivation + perceived usefulness
- Development of critical competencies
- Group collaboration + overall experience



Identified challenges

- Limited time for question review
- Need for increased teaching staff supervision in quality control

Qualitative feedback

- More engaging study experience
- Reduced pre-assessment stress

Conclusions...

- HistoQuiz is based on **active learning** methodologies that promote **participatory + meaningful learning** in Histology.
- **Collaborative creation** and **peer review** of multiple-choice questions foster **conceptual analysis, histological image interpretation, critical thinking, and error detection**.
- Availability of questions on Moodle supports **autonomous study + self regulation**, while assessment built from student generated questions increases **motivation + responsibility**.
- The integration of **flipped classroom, peer learning, retrieval practice**, and **continuous teaching staff feedback** consolidates core content and develops transversal competencies, including **communication, autonomy, and problem solving**, in line with evidence-based practices in higher education.





Thank you!

References:

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