Using Active Teaching Strategies versus Standard Learning Approaches for Increasing Student Interaction and Knowledge Achievement in the Histology Course.

CURSO: 2016-2017

FACULTAD: Medicina

I. PARTICIPANTES (incluir categoría profesional y director del proyecto)

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II. RESULTADOS OBTENIDOS

Background: Traditional lecture has been the standard format for teaching histology to medical students. In general, medical students desire an alternative to the traditional lecture that is more consistent with their learning goals, and the ones of the course. It is known that active learning can engage students in the learning process.

We have designed a new structured active teaching format based on a multi-platform application (app) for phones and tablets, called Histology App, that would be easy to implement within the Histology course.

Assessments: We assessed: i) satisfaction with learning; ii) immediate knowledge achievement; and iii) long-term knowledge retention. 10 students (out of 73) answered the survey (see more: Evaluation of the App and dynamic learning on the Histology App).

This is a work-in-progress. We have included just one course subject (epithelial tissue), taught in the first week of the Histology Course.
The Histology App is based on the following specifications:

1. **Pre-class preparation:** Students are engaged with the assigned pre-class preparation activities that motivate them to take responsibility for their own education.

2. **In-class group activities:** It is an interactive and active form of teaching, similar to Seminars, designed to expand on the information presented in the lectures and to provide an opportunity for students to read and discuss scientific literature. Sometimes the classes are completely student led. Students are often asked to give their opinion and impressions and to prepare short presentations.

3. **Self-assessment:** Students are tested on their skills and knowledge in specific subject with the help of multiple choice questions, clinical cases, and video materials.

4. **Personal study:** Students have access to a wide variety of educational resources for their personal study.

5. **Evaluation of the App.** (see more: Evaluation of the App and dynamic learning on the Histology App).
**Student Satisfaction:**
To assess learner satisfaction, we asked the students to answer a survey (see more: Evaluation of the APP and dynamic learning on the Histology App). The goal of the survey was to evaluate student’ perceived gain in knowledge, appropriateness of content, clarity of learning points, relevance of learning points, engagement in learning.

The Histology App has shown to be a simple and structured way to improve learning satisfaction within the Histology course. All the students answered positively, saying that they were more engaged in the learning process compared to the traditional methods. The App activities were not tied to a grade. This allowed the lecturer to moderate a free and relaxed discussion and ask questions that may have more than one right answer, which generated more fruitful discussion.

All the students agreed that using the Histology App was enjoyable and felt more comfortable with this format of activities compared to the standard lecture. The lecturer sensed that the students were more engaged in the learning process, evidenced by eye contact, body language and increase in discussion. Some activities of the App share some of the principles of team-based learning. The “in-class activities” did not require students to prepare anything prior to attending class.

Unfortunately, not every student used the App during the activities. The immediate feedback from students was very positive.

**Immediate knowledge achievement:**
Students who used the Histology App during “in-class group activities” scored higher on the immediate knowledge questions when compared to students who did not use the App. Students who used the App were more focused and engaged in the activity. Students who did not used the App and followed the activity with slide presentation only were less engaged, especially, because they were totally depended on the lecturer and could not review the images and text on their own.

**Long-term knowledge retention:**
Unfortunately, we could not evaluate long-term knowledge retention due to the lack of time and extensive curriculum.

There were a few challenges to implementing the Histology App. Many students raised the concern that this format reduces the amount of information delivered during the class. Not all students were willing to use the App. While the response to the App was positive, implementation within the histology course would require lecturer and student buy-in.

III. **PROPUESTA DE MEJORAS FUTURAS (si procede)**

While we included one subject on the Histology App, we believe that the App can be applied to all subjects within the histology course and help to engage students in the learning process.

*Fecha: August 28, 2017.*