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Active learning and interactive teaching in Veterinary medicine: Injections and blood sampling in pigs in the Skills lab

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Abstract:

Skills labs are used in veterinary medical and medical education for teaching of practical skills. Teaching and learning with skills lab material increases competency and confidence with expectation to perform actions under pressure (like life-threatening conditions of the patient) or in a challenging environment such as in the presence of stressed patient owners or an uncooperative animal. In veterinary medical education, skills labs reduce usage of animals when teaching invasive techniques like injections, blood sampling or surgical procedures. So they are also part of ensuring optimal animal welfare.

The Bachelor of Veterinary Medicine programme (BVM) of the Jockey Club College of Veterinary Medicine and Life Sciences of CityU is a highly academic and challenging programme, in accordance with veterinary programmes taught in other established veterinary colleges and schools. Both teachers and students have to cover a wide variety of theoretical knowledge, but also practical and clinical skills. One of the goals is to achieve the “day one competencies” in veterinary medicine. This goal can be reached in different ways, however, in modern veterinary medical education, skills labs and models as described above are used.

We propose to implement a skills lab station for injections and blood sampling on pigs for BVM at CityU for a variety of reasons. Pigs are food production animals with a monetary value for the owner. Pigs are also challenging to handle (an adult sow can have a body weight of about 250kg) and have to be restrained for blood sampling leading to resistance and loud vocalisation. For inexperienced students, this situation per se is already highly stressful. Injections and blood samples require the use of sharp needles with potential for injuries (both to the animal and humans), further increasing the stress. The latter can be significantly reduced by practicing injections and blood sampling on a model. The station

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will facilitate analytical and critical thinking, as the students have to perform selected task themselves. Comprehension and injection and sampling skills can easily be checked when students demonstrate and explain actions and procedures. This demonstration also enhances professional behaviour and communication when performed in the style of a little role-play. This teaching approach would rarely be possible in a pig farm setting, at least for inexperienced students. Especially at the moment, with the threat of an epidemic disease (African Swine Fever, causing devastating losses to the pig industry), the use of the model would allow to reduce the need for live pig contact and hence support local pig health. The model shall be established within the context of a skills lab (under development) comprising further stations and materials. The skills lab shall be operated with regular open-hours allowing students self-directed practice, repetition and peer-teaching according to their needs, based on own time management.

In summary, benefits of this skills lab station project are

facilitation of interactive teaching and active learning,

alignment with the Outcome Based Teaching and Learning approach at CityU,

mediation of practical and clinical skills in a save environment,

comprehensive preparation of the students for the contact to real patients (pigs) and their owners,

increased welfare of students and animals (pigs)

Academic Publication:

Parkes, R., Wu, J., & Flay, K. (2021). A 3-D printed model for aging sheep by dentition. Veterinary Schools Council Veterinary Education Symposium (VetEd 2021). Surrey, United Kingdom. https://scholars.cityu.edu.hk/en/publications/a-3d-printed-model-for-aging-sheep-by-dentition(c5a90a36-61d9-440c-9335-581ec853ec22).html