Department of Optometry & Vision Sciences

Doctor of Optometry

THE UNIVERSITY OF MELBOURNE

Integration of Simulation to Education of Optometry Students

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Optometry

A healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/diagnosis and management of disease in the eye, and the rehabilitation of conditions of the visual system.

Adapted from World Council of Optometry

Simulation

A person, device, or set of conditions which attempts to present [education and] evaluation problems authentically. The student or trainee is required to respond to the problems as he or she would under natural circumstances. Frequently the trainee receives performance feedback as if he or she were in the real situation (McGahie, 1999).

The process of 'reproducing' one or more aspects of the working environment....can replicate clinical scenarios in a realistic environment that equates safety with absence of risk (Sadideen et al., 2012).

In the last 30 years, medical education has increasingly adopted simulation in order to provide a safe and controlled practice environment that enable acquisition of learner knowledge and clinical skills (Fincher & Lewis, 2002; Issenberg et al. 1999).

Factors identified in medical education that led to the rise of simulations (Issenberg et al. 2004) relevant to Optometry include:

(a) Problems with clinical teaching;

(b) Assessing professional competence;

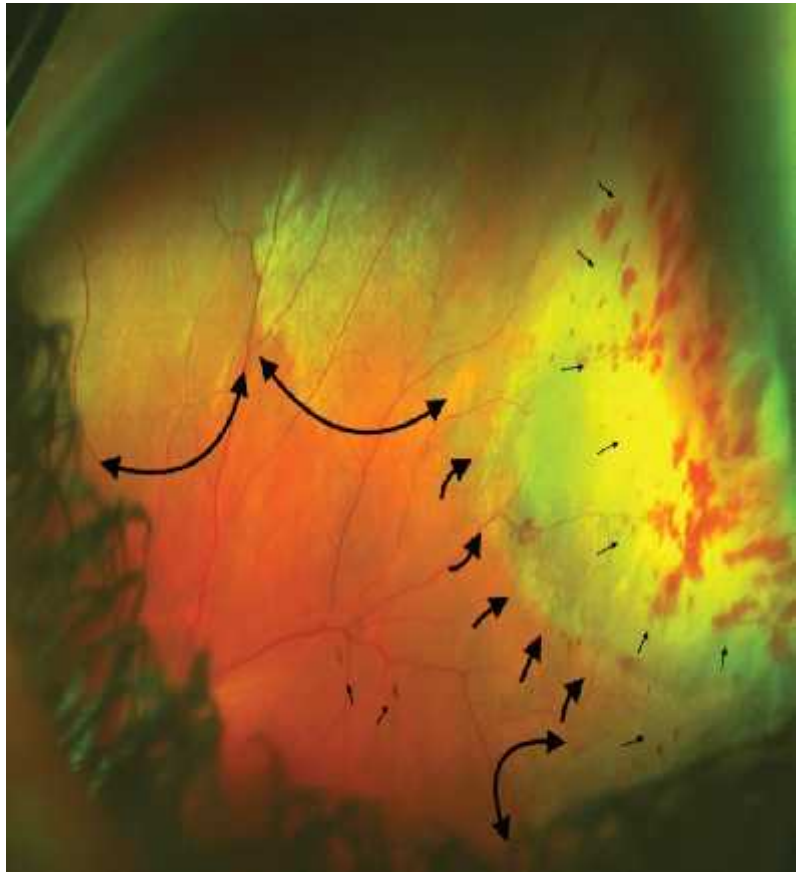
(c) Role of deliberate practice;

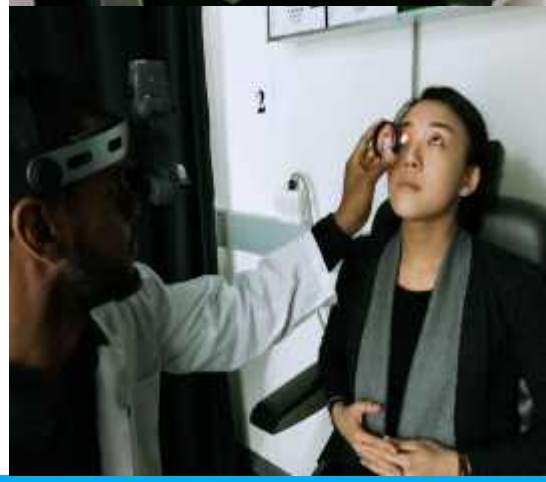
Majority of optometric skills attained by practicing on each other in a non-invasive, high-fidelity simulated clinical environment.

Binocular Indirect Ophthalmoscopy (BIO) is an essential optometric skill that students must achieve professional competency.

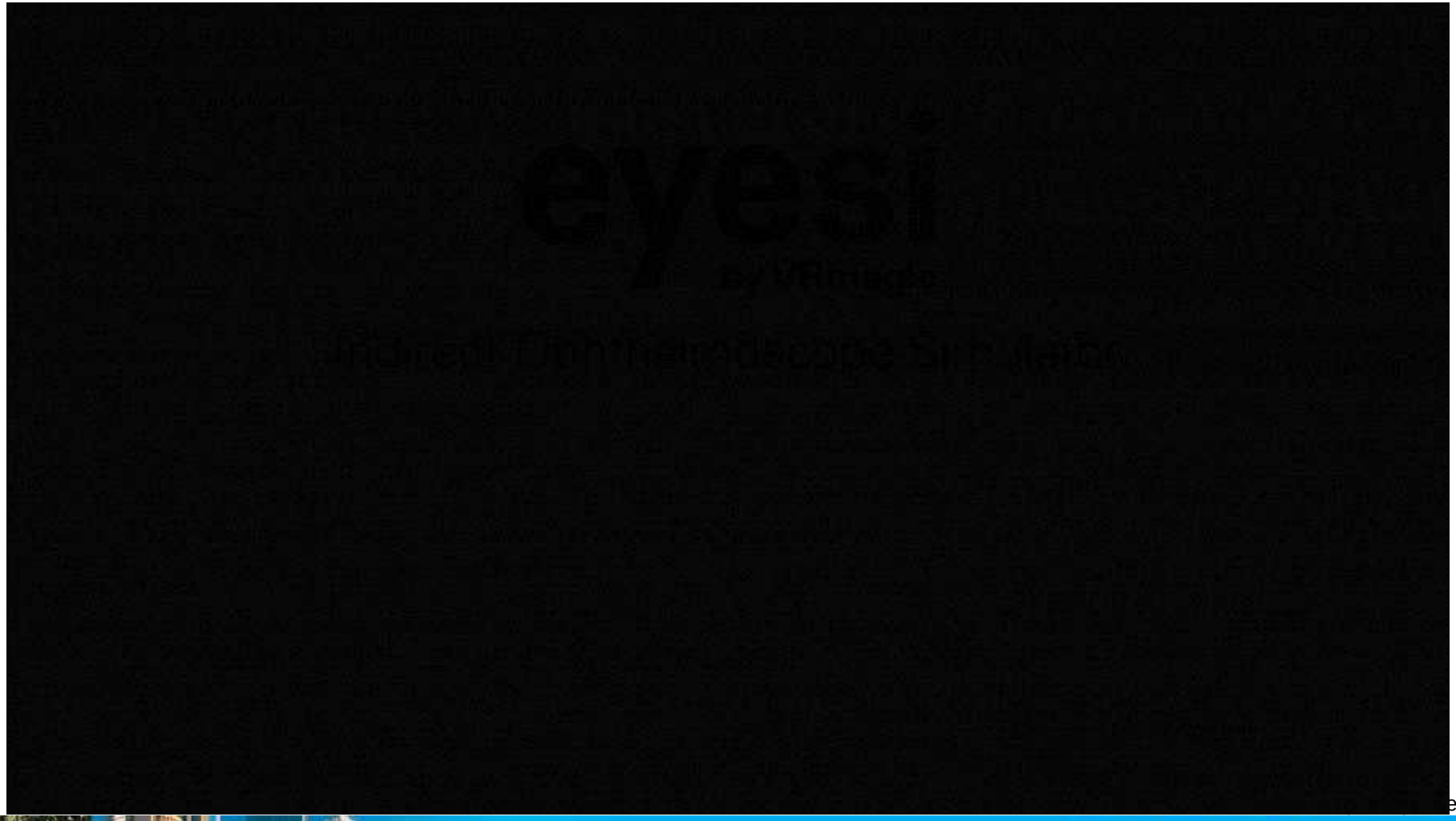
A constant challenge for clinical educators to provide immediate, constructive and rich feedback as the retina examined cannot be viewed simultaneously.

Difficult for students to improve their skills efficiently and effectively without repetitive practice.





Cham, K. M., Di Pasquale, D. N. and Jaworski, A. (2017), A case of commotio retinae following champagne cork injury. Clin Exp Optom. doi:10.1111/cxo.12515
Cham KM, Tram L (2016). Posterior Uveal Melanoma. Int J Ophthalmol Eye Res. 4(11): 263 – 265.



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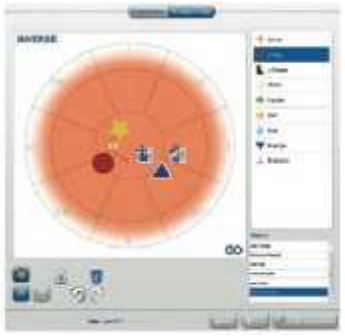

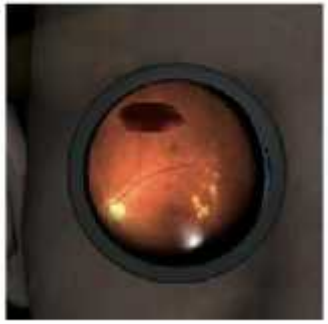

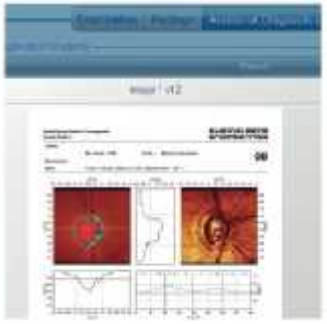

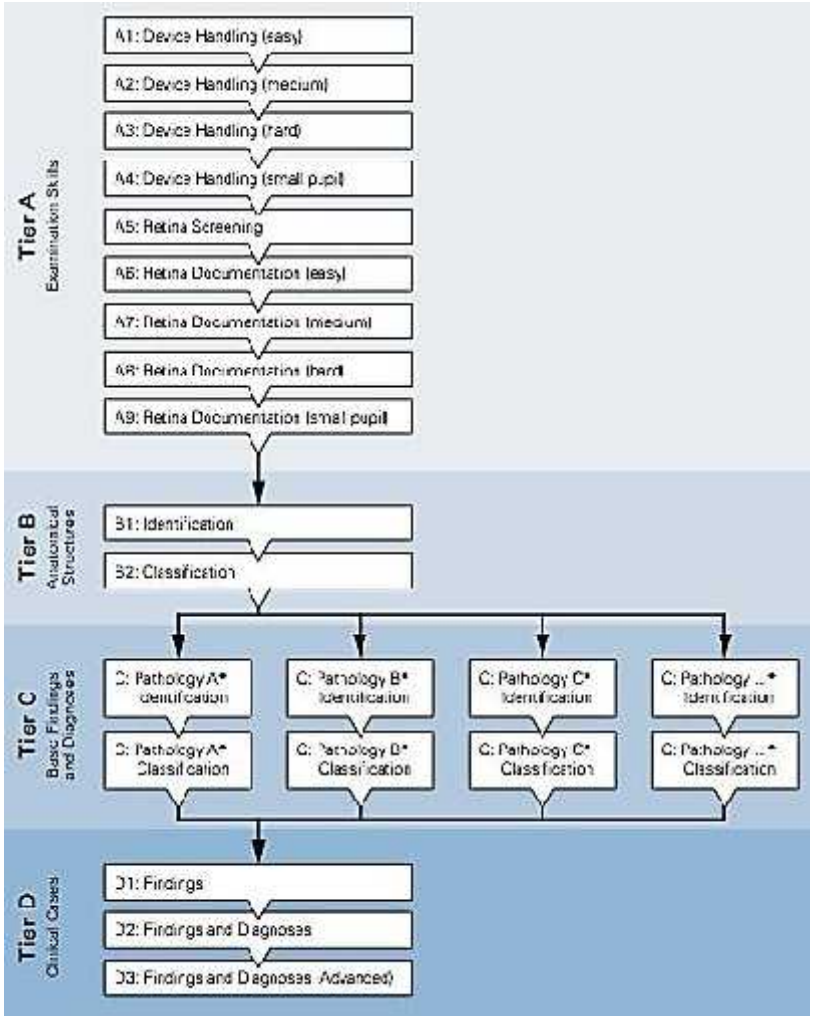

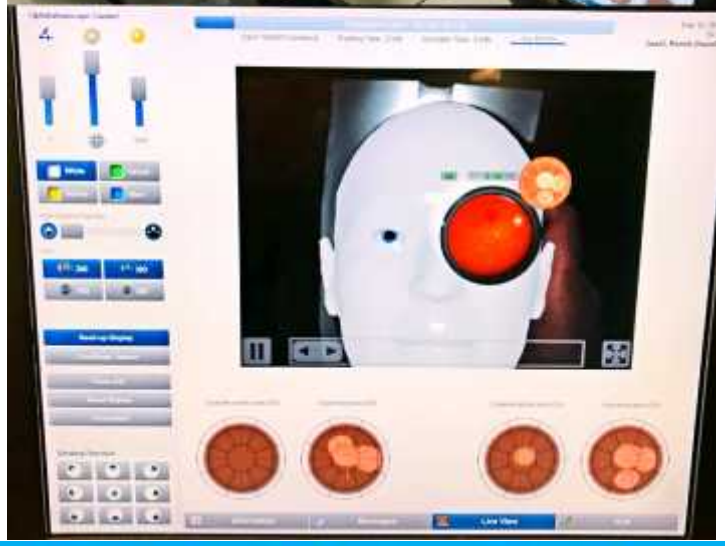

Victorian Allied Health Research Conference 2017

Allied Health Future Directions

Preliminary observations suggest the simulator may solve the problem of clinical teaching, and also support the role of deliberate practice.

Curriculum integration (self-directed):

- One didactic lecture and two practical classes
- Compulsory on-line orientation course
- Year 2: Groups of 3 for 6X2hr sessions (PAL in the 1st session)
- Year 3: Individual for 6X2hr sessions

Ethics approval to conduct anonymous surveys over a two-year period to assess students' perception (104 students, 46% response rate).

90-100% of students strongly agreed or agreed that the technology:

- is a highly valued and useful learning tool;
- contributes to them being more confident, competent and proficient in performing BIO; and
- improves their stability, orientation and alignment when examining the retina on a real patient.

Perceived benefits

- Deeply interactive and immersive learning experience
- Improved students' clinical examination and reasoning skills, concurrently minimizing the range and variability in clinical performance.
- Technical competency can be achieved earlier, which then enables clinical educators to concentrate on the translation of the technique to a real patient in the clinical setting in later years.

Perceived benefits

- Reduction in teaching workload as the need for intensive one-on-one BIO technique introduction and refinement with clinical educators is minimised, particularly in the early stages.

- Increased student interaction and engagement.

Limitations

- Supplements, but still does not completely replace conventional practical classes.

- Certain aspects such as patient instructions, manipulating the patient's lids, head, and altering chair height cannot be taught and evaluated properly.

Limitations

- How the simulator generates a final score based on its assessment criteria remains to be understood.
- Large class sizes will require multiple simulators, and at present service and repairs are only available in Germany.

Where to next

- Formal study to evaluate the efficacy of the BIO simulator in improving student-perceived proficiency and confidence.

- The suitability of the BIO simulator to be used as an examination tool in clinical competency examinations remains to be explored.

Some useful thoughts

- Spend time to know the technology– complex educational intervention that needs to be thought through carefully, and evaluated robustly.
- The role of simulation – replace/supplement standard class/assessment?
- Budget – how many do you need? Repair and maintenance costs Back-up plan when it breaks down?
- When's the best time to buy it? When it's proven, or be at the forefront of educational technology?

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Research interests

- Simulation
- Movies of clinical procedures
- Interactive on-line clinical cases
- Peer-assisted learning and teaching
- On-line peer review
- OSCEs using iPads

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EDUCATOR'S PODIUM

Using Technology to Enhance Student Learning and Clinical Teaching Outcomes

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