

Harris, Dean, Smart, Shelley, Gill, Robert, Miller, Paul K., Bolton, Gareth, Waring, Lorelei and Marland, Amanda (2018) The impacts of a clinically-orientated approach to teaching physics in ultrasound to sonography students. In: UK Radiological and Radiation Oncology Congress: Disease and Diversity, 2-4 July 2018, Liverpool, UK. (Unpublished)

Downloaded from: <http://insight.cumbria.ac.uk/id/eprint/3822/>

Usage of any items from the University of Cumbria's institutional repository 'Insight' must conform to the following fair usage guidelines.

Any item and its associated metadata held in the University of Cumbria's institutional repository Insight (unless stated otherwise on the metadata record) may be copied, displayed or performed, and stored in line with the JISC fair dealing guidelines (available [here](#)) for educational and not-for-profit activities

provided that

- the authors, title and full bibliographic details of the item are cited clearly when any part of the work is referred to verbally or in the written form
- a hyperlink/URL to the original Insight record of that item is included in any citations of the work
- the content is not changed in any way
- all files required for usage of the item are kept together with the main item file.

You may not

- sell any part of an item
- refer to any part of an item without citation
- amend any item or contextualise it in a way that will impugn the creator's reputation
- remove or alter the copyright statement on an item.

The full policy can be found [here](#).

Alternatively contact the University of Cumbria Repository Editor by emailing insight@cumbria.ac.uk.

The impact of a clinically-orientated approach to teaching physics in ultrasound to sonography students

Dean Harris¹, Shelley Smart², Rob Gill³, Paul K. Miller², Gareth Bolton², Lorelei Waring², Amanda Marland²

¹University of Liverpool, ²University of Cumbria, ³School of Women's and Children's Health, University of New South Wales (UNSW)

Background

It is recognised by professional bodies (e.g. CASE¹) that student sonographers need to be educated in the science and technology of ultrasound equipment, both for patient safety and to obtain the best diagnostic image possible. Sonographers who study ultrasound physics are known by teaching practitioners to have difficulties in comprehending the topic². The purpose of this action research was to evaluate if deeper learning might be achieved through more engaging activities which focussed on active learning, and incorporated stronger links to clinical applications.

Method

A review of current ultrasound physics teaching methods was conducted via peer review. The student's preconceptions were explored using a survey. A newly designed module was purposefully incorporated small group tutorials led by members of the academic team and practical ultrasound lab activities. The impact of this intervention was evaluated via student feedback.

Results

The majority of respondents had negative experiences learning ultrasound physics. Following the intervention, students generally felt they had an improved understanding of ultrasound physics and technology and that they were better equipped to apply this to their clinical work.

Conclusion

This action research adopted qualitatively confirmed that the more engaging methods has improved student's perception of studying ultrasound physics and the belief that physics does indeed apply to their work as clinical practitioners. Overall, this makes students more likely to apply these principles in clinical practice, thereby aiding the development of safe and competent practitioners. Future studies can expand this approach to larger cohorts of students.

References

1. Consortium for the Accreditation of Sonographic Education (2015) *CASE Validation and Accreditation Handbook*. Available at: <http://www.case-uk.org/handbook/> (Accessed: 17th January 2013).
2. Oates, C.P., 2015. Reviewing the curriculum for physics and technology in postgraduate sonography courses. *Ultrasound* 23, 42–47. doi:10.1177/1742271X14567499