

## ORIGINAL RESEARCH

A25

ENHANCING RADIOGRAPHIC PROFICIENCY  
THROUGH CO-PRODUCED GAMIFICATION

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**Introduction:** Student radiographers must be proficient in appraising diagnostic images for clinical manifestations and taking appropriate action [1]. Chest X-rays (CXR's) are the most frequently performed imaging examinations in the UK [2]. presenting complex anatomy and numerous pathologies that challenge students. Simulation-based education, particularly gamification, has shown promise in enhancing engagement and achieving learning outcomes [3]. This study evaluates the effectiveness of a co-produced, creatively designed simulation in improving CXR proficiency among third-year radiography students.

**Methods:** Ethical approval was obtained from the university's Faculty of Medicine and Health Sciences ethical committee. This study involved the development and implementation of CXR RadPath, co-produced and led by a student radiographer, academic supervisor, and the faculty simulation team. The tool was designed to enhance CXR interpretation through gamification. Encompassing the use of QR codes to access and explore various radiographic images, six key categories related to CXR interpretation which would be a skill required in clinical practice, and an element of competition. The game pro-actively promoted students to work collaboratively and learn together. Participants completed pre- and post-simulation assessments to measure improvements in proficiency and confidence. Quantitative data were collated and evaluated using descriptive statistics to assess changes in image analysis competence. Qualitative data were thematically analysed to evaluate students' perceptions of gamification and its effectiveness in supporting radiographic education.

**Results:** Students demonstrated significant improvement in CXR interpretation proficiency after using the gamified version of reporting images in clinical practice. Significant changes were noted following its use with 83% of students progressing from "Moderately Confident" to "Very Confident" in their ability to interpret CXR's. A further

67% of students improved in identifying abnormalities on CXR's with a mean score improvement of 31%. Qualitative themes found the simulation to be engaging, effective, and beneficial for enhancing systematic radiographic analysis skills, fostering creativity, and promoting a culture of collaborative learning.

**Discussion:** The use of a co-produced and creatively designed gamified version of reporting chest X-rays significantly improves students' confidence and accuracy in CXR interpretation. Co-production allowed the simulation design pedagogy to be taught while aligned to student motivations. This collaborative approach ensured that the educational strategies were not only pedagogically sound but also engaging and relevant to the students, thereby enhancing their learning experience and outcomes. These significant outcomes have led to further development of this student-led project, expanding into other areas of image interpretation (axial and appendicular skeleton) and being implemented with other cohorts.

**Ethics Statement:** As the submitting author, I can confirm that all relevant ethical standards of research and dissemination have been met. Additionally, I can confirm that the necessary ethical approval has been obtained, where applicable.

## REFERENCES

1. Health Care and Professions Council. Standards of Proficiency: Radiography [Internet]. 2023. Available from: <https://www.hcpc-uk.co.uk/globalassets/standards/standards-of-proficiency/reviewing/radiographers---new-standards.pdf>
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