

# Utilising Ethnographic Methodologies to Ensure Sustained Adoption of Digital Systems In Healthcare Environments

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I am a 2nd Year PhD Student at Swansea University investigating deployment and adoption of artificial intelligence and machine learning tools in clinical environments. I have a keen interest in utilising ethnomethodological techniques to investigate how systems may be more sustainably adopted in hospitals.

I have conducted work with both trainee radiologists and consultants to investigate their perspectives on modern digital systems and the current state of machine learning in their departments. Focus groups with trainees explored their feelings on what constitutes "machine learning" in the workplace and where they felt these tools would be best deployed to improve their future job satisfaction. This focus group revealed that, whilst these trainees exhibited clear outward optimism towards the implementation of ML, when probed further they still had skepticism that these tools and systems would work as well as a human colleague. Workshops carried out with consultants worked to explore self-reported causes of delays and errors in their workflow to investigate the role that existing systems may play and to suggest potential avenues for new systems. These workshops exposed that clinicians believe almost all of their problems would be better solved with more personnel than more highly sophisticated machine learning programs.

I am currently undertaking an ethnographic observational study with reporting radiologists to understand the methods of constructing and communicating reports, and how digital systems help and hinder this process. This study is investigating the current use of tools available to the clinician, and how the interruptions and delays that cause communication errors could be mitigated with better developed and more appropriate systems. The goal of this study is twofold; I hope to contrast self-reported data from workshops with impartial and non-interactive data from observations to create a bi-dimensional image of the clinicians routine that takes into account an expert's understanding of both technological systems and medicine, and to initiate practitioners into a research environment that might help to increase interest and enthusiasm surrounding deployment and adoption of AI programs.

The end goal of this research in the future is to develop a thorough understanding and codified framework of how to evaluate, implement and maintain novel AI programs in radiology departments. Radiology is one of the most technologically dependent fields of medicine, and I believe that better adoption of these systems will allow for more widespread implementation across the entire hospital environment.

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