

**Dr Jonny Holland  
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**Game on!**

**Using Gamification to increase access  
to Human Factor Skills and Knowledge**

International Forum on  
**QUALITY & SAFETY  
in HEALTHCARE**  
**GOTHENBURG**

# Disclosure Statements

## Financial:

- *Gill Smith is Managing Director of Kaizen Kata*

## Non financial:

- *Gill Smith is a member of IHI Faculty*
- *Jonny Holland has no relevant financial or relevant nonfinancial relationships to disclose.*



**Gill Smith**  
**Quality improvement and human factors professional, former QI Lead NHSCT and virtual cycling gamer!**  
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**Jonny Holland**  
**Anaesthetist and Clinical Lead for QI Lead, NHSCT and avid PC gamer!**  
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# Session Objectives

- . Describe how human factors is a significant contributory factor to patient safety incidents
- . how the principles of Gaming can be adapted to human factor skills development and learning
- . Share with you the how we implemented a Gamification Strategy with the aiming of impacting positively on behaviour change and support getting 'up stream' of patient harm
- . Immerse you in our Game! You get to travel with Joe the patient on his healthcare journey and experience human factor impacts

# Live Poll – How would you describe Gamification?

[www.slido.com](https://www.slido.com)

Code:  
#6880917



# Defining Gamification

- NOUN

- ***gamification*** (*noun*)

the application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, to encourage engagement with a product or service.

"gamification is exciting because it promises to make the hard stuff in life fun"

# The Context

- Failings in human factors, are a significant contributory factor in accidents/incidents in aviation, energy and healthcare.
- 80% of serious adverse incidents in healthcare are related to miscommunication in transitions of care (Source: IHI)
- Negative team behaviours have a significant impact on the quality and safety of healthcare. The Royal College of Surgeons (UK) Survey 2017, found that such behaviours account for 71% of medical errors, 67% of adverse incidents; costing the NHS circa £13.7 billion annually.
- There is no 'one thing' that will address human factor failings- it requires multiple interventions; including developing human factor awareness and skills to influence behavioural change.

# Gaming in numbers

- 3.9 billion smartphone users worldwide (Newzoo)
- Nearly 83 billion mobile games downloaded in 2021 (AppAnnie)
- 134 billion USD in game revenue and 93 billion was mobile (Statista)
- Puzzle is the biggest genre for downloads (Statista)
- 50 % of mobile gamers are over 34 (Mediakix)
- On average
  - 20.4 mins/day Male
  - 25.6 mins/day Female



# Psychology of gamification

- Gamification of learning – complete task to unlock next stage
- Apply gaming mindset to life
- Intrinsic versus extrinsic motivation for learning
- Creating that just one more go
- Small incremental positive feedback
- Engage audiences, solve problems and have fun

# Why Gamification

- Challenging for staff access HF intro sessions
- Potential for wider audience – clinical/non-clinical, hospital and community
- Easier access on personal devices- time and location
- Personal experience of digital content
- Game based learning

# HF app

**The Challenge...**reaching all those who can benefit from human factors training

**The Aim....**deployment of game via mobile phone

**The Partnership....**NHSCT and School of Computing, University of Ulster

**Our Approach....**QI methodology and Agile development. Underpinned by a Gaming Strategy (co-designed). Design suitable for scale-up and spread.

**Our Measures of impact....**Psychological and Behavioural and proof of concept

# Our Timeline

- ✓ Oct 19 Project start-up
- ✓ Oct 19-Jan 20 MDT team formed and co-design workshops on gaming strategy
- ✓ Jan 20-Jul 20 Game characters & missions developed around DuPont's Dirty Dozen
- ✓ Nov 19-Mar 20 Early design work with university and assigned student (lost student during Covid)
- ✓ Feb-Apr 20 Intellectual Property agreement developed (Lambert Agreement)
- ✓ Oct 20-Feb 21
- ✓ Feb 21-May 21 Procurement planning, process and supplier selection Agile development and testing
- ✓ Jun-Jul 21 DPIA and Penetration Testing
- ✓ Sep 21 Game launch

# Our Gaming Strategy – DuPont's Dozen



Poor  
Communication



Complacency



Lack of  
Knowledge



Distraction



Stress



Lack of  
Resources



Pressure



Lack of  
Teamwork



Loss of  
Awareness



Accepting the  
Norms



Fatigue



Lack of  
Assertiveness

# Meet Joe (our patient) and the Game Characters.....

**Naomi**  
the Nurse



**Dave**  
the Doctor



**Paula**  
the Physio



**Joe**  
the Patient



**Sandra**  
the Social Worker



**Deirdre**  
the District Nurse



**Colin**  
the Care Worker



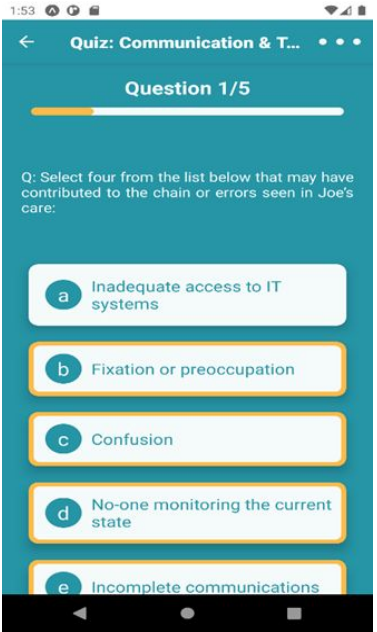
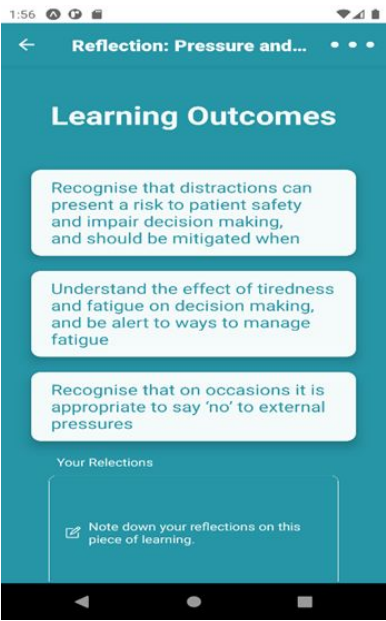
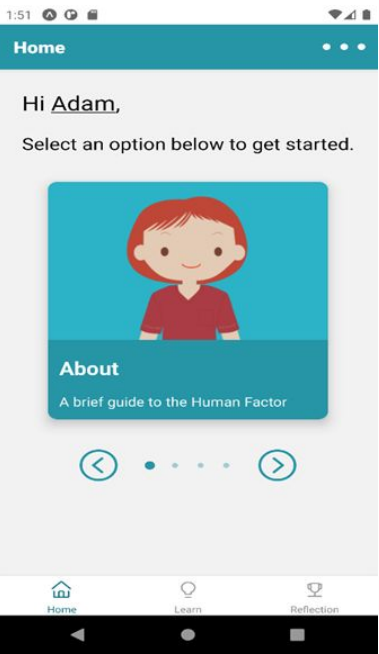
# Demonstration



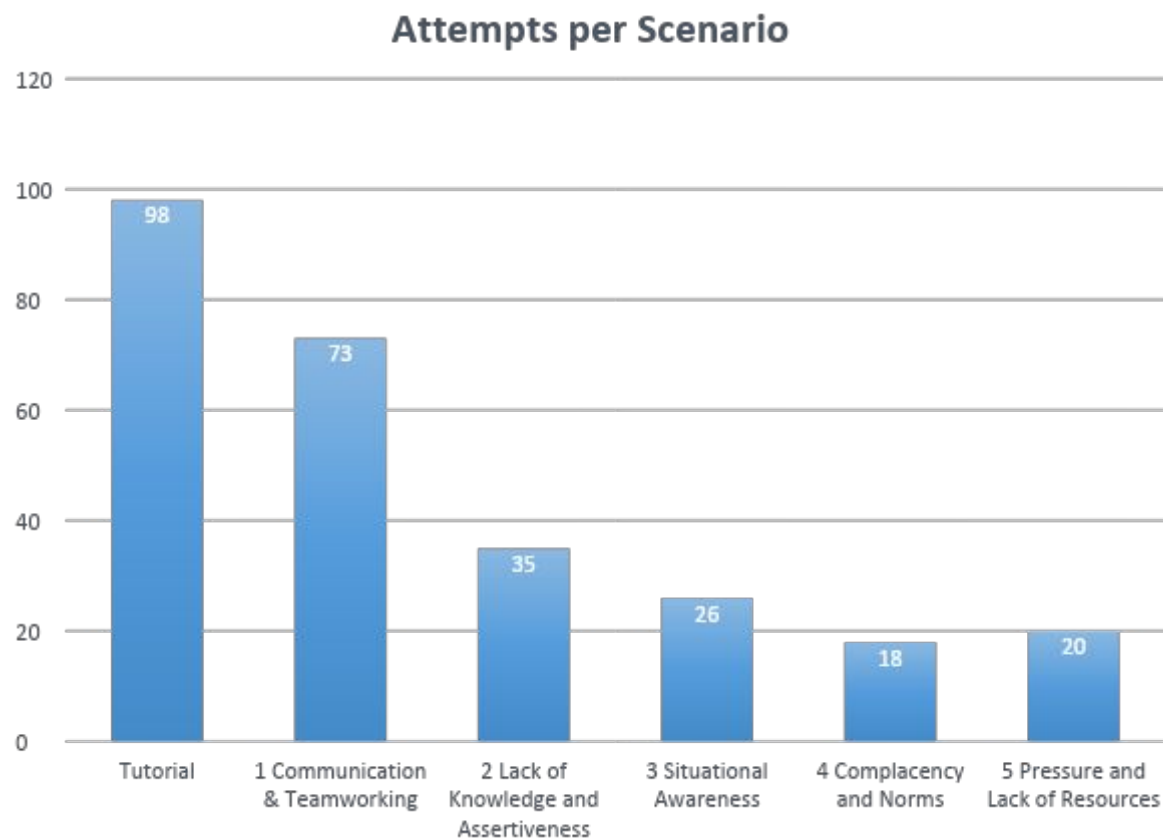




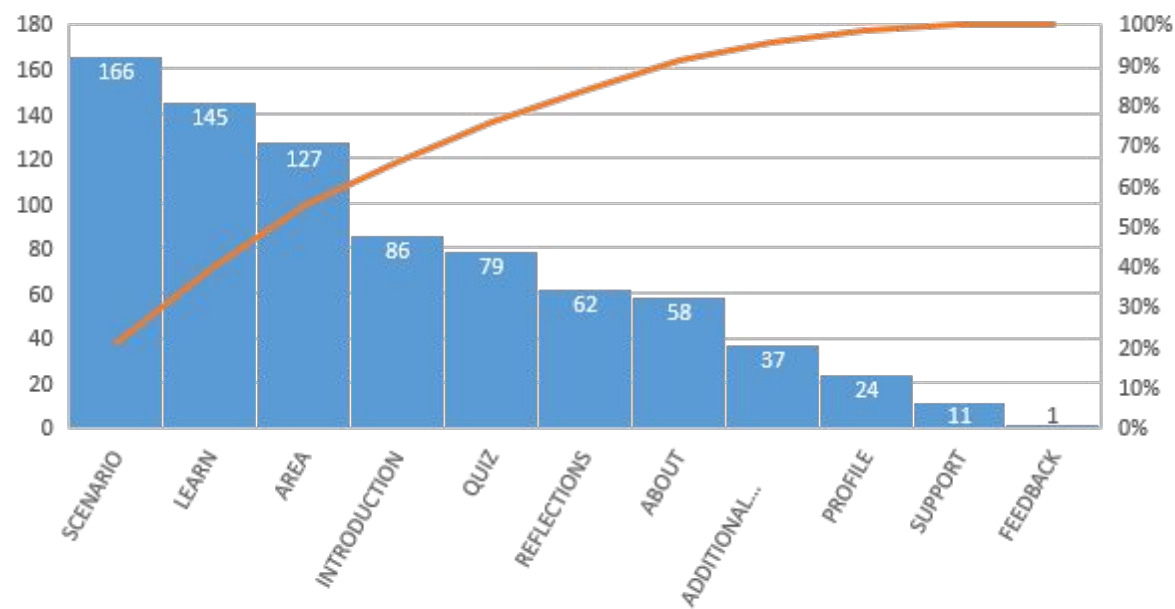
# Screen Shots



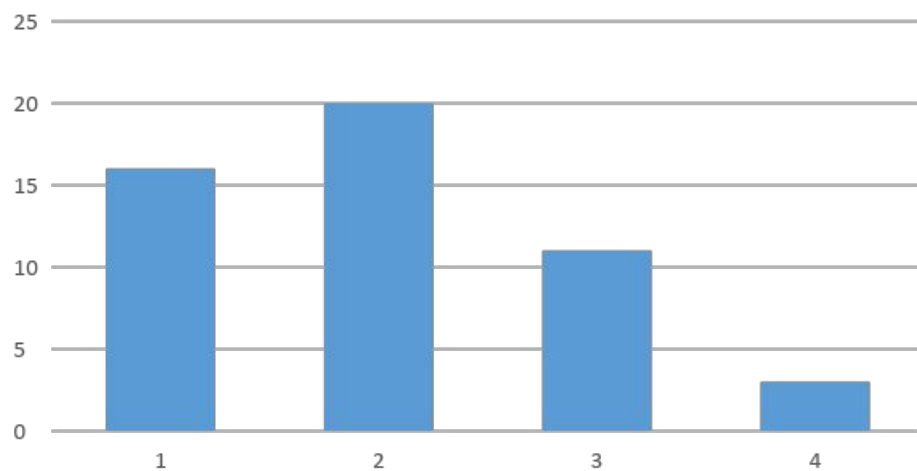
# The Gaming analytics



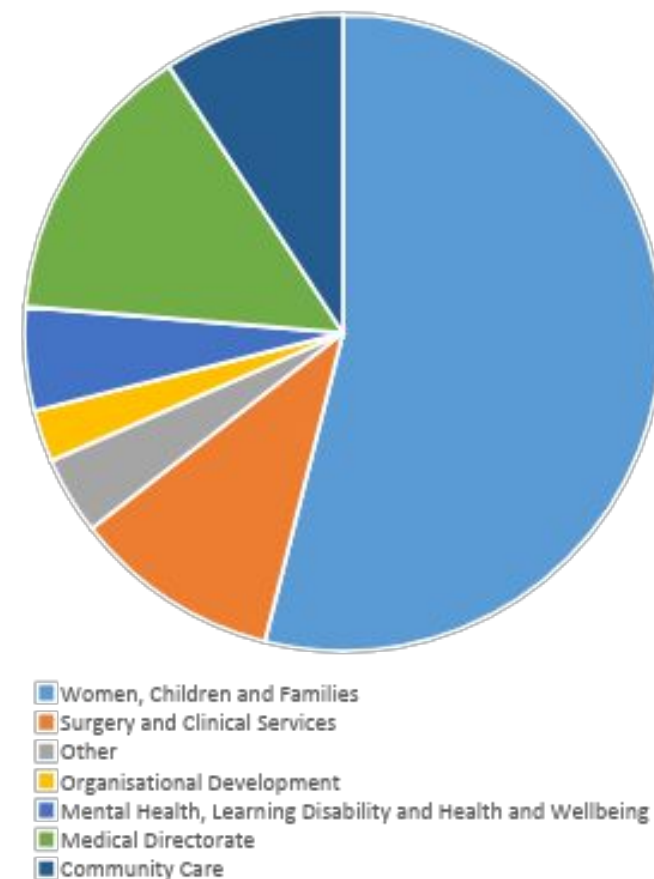
### Number of page visits



### Current level of knowledge 1 - low to 4 - high



### Completion by division



# Our Learning

- Early clarity on partnership arrangements, IP ownership and formal agreement
- Tight, clear specification is a must
- Working with University was a viable partnership – but Covid created difficulties
- MTD input to design missions and co-design on Gaming Strategy was key
- Significant Trust-led work on Gaming Strategy, Missions, Characters etc. supported swift development
- Preparedness for ongoing support costs
- Earlier planning for Penetration Testing and securing funding for same
- Strong launch support – posters broadcast emails

# QUESTIONS

