



An Exploration of the Ethical Issues with the Gamification of Information Security Awareness Training



| WWW.QUANTUMSECURITY.CO.NZ

Thank You to Our Sponsors and Hosts!



OWASP
NEW
ZEALAND
owasp.org.nz



DATACOM



QUANTUM
SECURITY



myob



VOCUS



security initiative

SEQATM
Information Security

Without them, this Conference couldn't happen



QUANTUM
SECURITY

DF

**Dan Frayn** 10/22/20 1:00PM

Would you consider gamification an ethical risk?



Who this talk is for

The next 30 minutes...



Looking at what
gamification
is



What ethical
issues might
apply



Applied to information
security awareness
training

Information security

information security is the protection of information to provide confidentiality, integrity and availability.

Ethics

the moral principles which govern a person's behaviour or the conducting of an activity.
Ethics are not what we think or feel is right or wrong.

Awareness training

a formal process for educating employees about information security.

Gamification

the use of games or game play in a non-game situation such as business.



Badges



Leaderboards



Challenges



Puzzles

A more game-like work environment

“Gamification”

“Gamification”

Playful Games

Serious Business

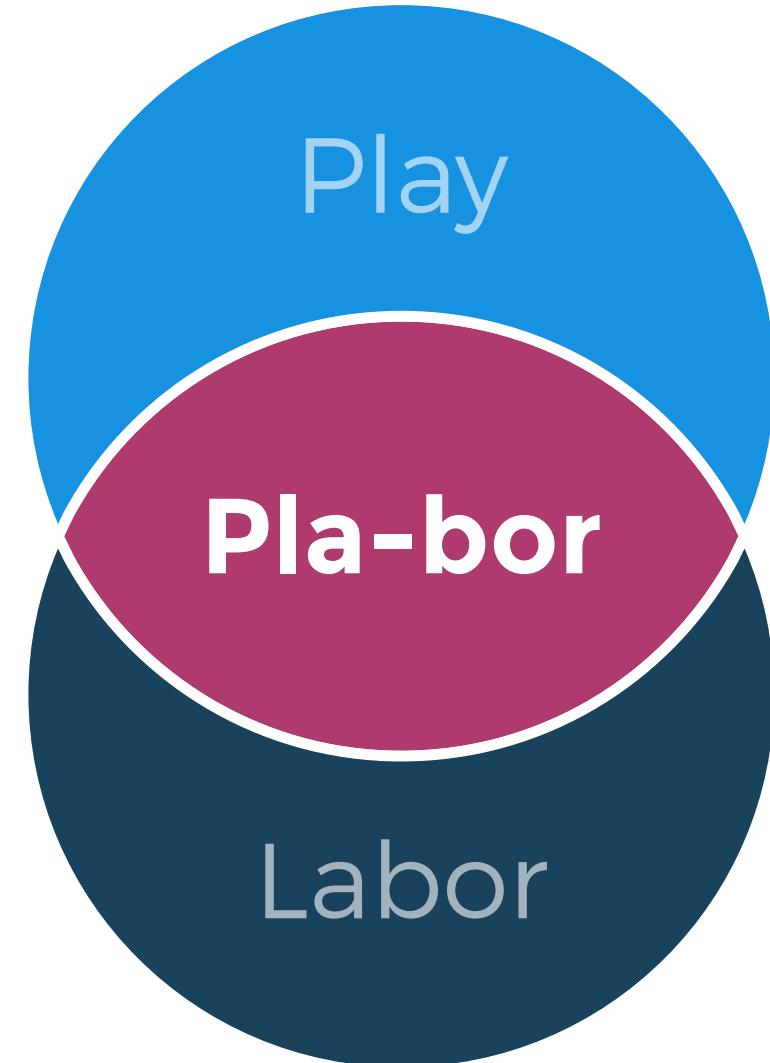


“Tension Points”

Gamification is
on the clock.

It happens
during paid
working time.

It is
part of the job.





A photograph of a man and a woman smiling and laughing together. The man on the left has curly hair and glasses, wearing a dark zip-up hoodie. The woman on the right has long hair tied back, wearing a light-colored t-shirt. They are outdoors, with a blurred background of trees and possibly a body of water.

gamification is **not always**
ethically wrong

Exploitation?

Exploitation?

Employee opt out?

Mandatory?

Quitting the only way to avoid it?

Well informed of purpose?

Employer / employee
power imbalance?

Exploitation?

Boring?



Fun?

Meaningless?



Exciting?

Monotonous?



Reduced
monotony?

Manipulation?

Manipulation?

A company **not disclosing the contents and goals** of a gamification system because it knows they would otherwise not participate **is manipulating those workers.**

Harm?

Harm?

Seeing performance vs coworkers ranked on a screen caused **panic about job losses**

“an official with Unite Here Local 11, said employees have been known to **skip bathroom breaks** out of fear that their production will fall and managers will demand an explanation”

Forbes

Harm?

Ethics of sharing
vs
Better (perceived) outcomes

Harm?

Advance disclosure may not alleviate
potential humiliation and harm

Character?

Character?

Real life characteristics
vs
Gamified characteristics

Culture?

Culture?



Gamification could create
unnatural competition and tension

Culture?

Are rewards exploitative?

A dark blue world map serves as the background for the slide, showing the outlines of all major continents.

Culture?

Cultural compatibility

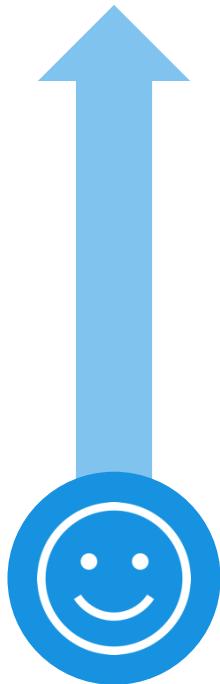
Why Gamification though?

Great on the surface

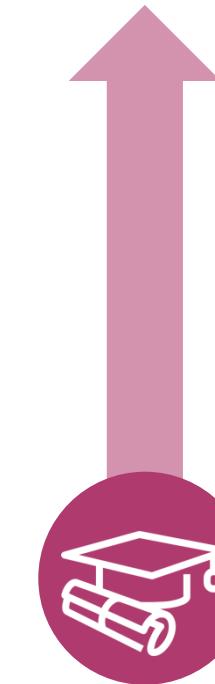
Absence of
research of
benefits and
dangers



Study applying basic gamification techniques to IT Compliance Training



vs



General population

Gamers

“Security awareness is a key link in an organisation’s security chain,
**as even the most efficient security mechanisms have little value
in an organisation with no security culture”**

Rantos, Fysarakis, and Manifavas

But...

“...People **aren’t even completing these things**, they’re so boring”

Totty 2005

Only 32 percent “agreed or strongly agreed that the compliance training they received over the past year **was engaging”**

Quaranta 2013



Stories and themes

+



Tracking points

+



Earning achievements

+



Competitive leaderboards

“Gamification, crowdsourcing and blended learning were utilised to make learning more fun”

Aldwairi, Shuhaimi

“In gamification, we most often
want everyone to win”

- Burke

“It has been underlined that despite the fact that the courses on information security **were provided** by the schools, the **majority of school staff members did not attend them.**”

Antonaci et al

Problems that gamification is intended to solve.

Myth

“It’s just a fad”

“Points, badges and leaderboards
to drive participation”

“Too complex”

“Our people aren’t competitive”

“Our people are too serious”

“Gamification is an expensive luxury”

Myth

“It’s just a fad”

“Points, badges and leaderboards to drive participation”

“Too complex”

“Our people aren’t competitive”

“Our people are too serious”

“Gamification is an expensive luxury”

Reality

15 years experience

Drives retention as well as participation

Doesn’t need to be overly complex

No evidence for that!

No evidence for that!

Affordable today

The Key Ethical Questions



Does it take unfair advantage of workers
e.g. exploitation?



Does it infringe any involved workers' or customers' autonomy
e.g. manipulation?



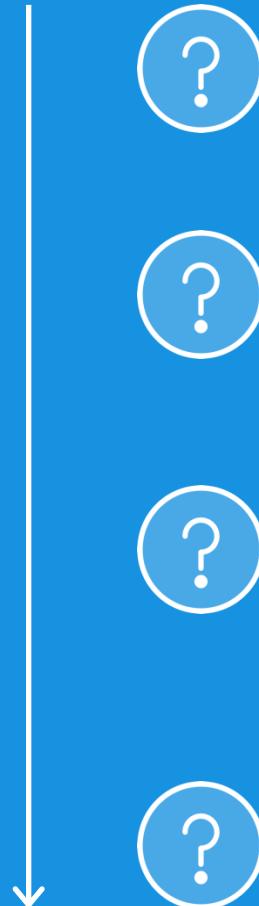
Does it intentionally or unintentionally harm workers and other parties?



Does it have a negative effect on the moral character of involved parties?

- Kim and Werbach

The Role of Gamification in Raising Information Security Awareness



Does the system **offer choice**?



What is the **intention of the designer**?



What are **potential positive & negative outcomes**?



Are the **beneficial outcomes weighted towards** the needs or desires of **the user or the designer**?

- Marczewski

A close-up photograph of a man's face. He has dark hair and is looking directly at the camera with a thoughtful expression. His right hand is resting against his forehead, with his fingers partially hidden in his hair. The lighting is soft, and the background is blurred.

“Gamification becomes unethical when the designer **uses the psychology of players** to manipulate them to **do things that are not in their best interest.**”

- Marczewski



Leaky
containers?

&



Digital
whips?

Data collection for
insight or marketing/other?

Illusion of change vs Real change

**Failure could
lead to more
dissatisfied
and disillusioned
employees**

“What if the leaderboards, levels and badges serve another negative purpose:
they become the means for work intimidation instead of motivation or lead to lack of group cohesion if these elements are meant to be visible to all team members and peer comparison is encouraged”

- Alashami et al

“It is obvious that gamification
is not a panacea”

- Kourtis

“Like a hammer, gamification is a tool.

A hammer can be used to build beautiful houses when used by someone who understands its uses and its limitations.

However, a hammer can also be used to break objects and cause great damage when used by those with less creative intentions.

This does not make the hammer ethical or unethical, it is just a tool...The same is true of gamification.”

- Marczewski

Specific Ethical Considerations for Gamification in Information Security Awareness Training

Do leaderboards need to be shared with everyone?
Succeed together and fail softly together.

3

Has the employee provided informed consent?

1

Is information only provided for information security awareness? Is it secondarily used?

4

Only option for non participation to quit their job? Is that reasonable?

2

Does it actually work for your organisation?

5

Kia kaha



Meet us at the Quantum
stand in the lobby



Email:
conor@quantumsecurity.co.nz