A GAME CHANGER IN EMPLOYEE SELECTION

Innovations in Gamified Assessment
“I did my online test yesterday, thought it was quite fun actually. Got way better for the second part and I think I got 2 or 3 'nailed it!' where I got them all right, but then some I got maybe half only, they kept buzzing out even though I swear they belonged in that spot lol”

From Whirlpool – Graduate Testing Online Forum
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  Reliability
  Validity
- Next Generation of Gamified Assessments
OVERVIEW OF GAMIFIED ASSESSMENTS

Engaging Assessments for the Digital Age
Gamified assessments blend game elements with robust psychometric methodologies.

- Engaging
- Reliable
- Valid
VALUE OF GAMIFIED ASSESSMENTS

Making data gathering more enjoyable
Gamification has consistently topped the list of upcoming tech trends in HR for the last 5 years.
Drive to provide a positive recruitment experience for candidates.

Leveraging game elements and narrative to create a two way interaction.
Why gamify?

WHAT CAN WE MEASURE?
Previous Research on Gamified Assessments

Leads to increased intrinsic motivation

Can measure similar constructs to standard assessments with correlations ranging from $rs = 0.45 - 0.60$

Performance may be multidimensional

CASE STUDY

High volume Graduate Recruitment
- A large professional services firm
- Assesses large volumes (10K+) of graduates for recruitment purposes
- Create a recruitment solution which measured cognitive ability
- Positive candidate experience
- Mobile first
- Promote the companies employee value proposition
Interactive Gamified Assessments
SOURCING, SCREENING AND SELECTING THE BEST TALENT

SOURCING

SUBMIT ONLINE APPLICATION AND CV

SCREENING

ONLINE VIDEO INTERVIEW

PHONE SCREENING

SELECTION

ASSESSMENT CENTRE

REFERENCE CHECK

HIRED

GAMIFIED ASSESSMENT
Hi Mary,

This statement describes what information is collected by Talegent as part of this online assessment, and how that information may be used.

What information is collected?

We collect both personal and non-personal information when you complete an online assessment. Personal information is collected explicitly and voluntarily when you fill out the online forms. This is similar to the kind of information you would share when filling out a job application. This may include your name, email address and phone number, as well as your responses to questions which make up the assessment.

Non-personal information may also be gathered through the online assessment:

- Your computer's IP address
- The type of web browser you are using
- The dates and times that you started and finished the online assessment

You have the right to request the modification or deletion of any personal information that is inaccurate.

Who has access to the information?

Talegent will only share your information with the organization to which you are applying for a job and any of its suppliers who are involved in the application process.

Can I re-sit an assessment to improve my score?

No. Scores reflect your performance at a particular time, and neither your responses nor your score can be changed after the fact.

How is my information kept secure?

We have implemented commercially reasonable electronic, physical and procedural safeguards designed to help protect against the loss, unauthorized access or disclosure, alteration or destruction of the information under our control.

Acceptance

By using this online assessment, you accept our privacy practices, as outlined in this Privacy Statement.

I ACCEPT
Completions so far...

12,558 Completions

45 calls to the Helpdesk (0.35% of total candidates)

38 Sessions completed on a mobile device and 26 on a tablet

Gamified Assessment Completions by Month:
- Feb: 1798
- Mar: 4843
- Apr: 3113
- May: 338
- Jun: 215
- Jul: 815
- Aug: 1351
Browser Usage

- Chrome was the most popular browser with 69% share
- Safari made up 17%
- Firefox 9% and IE 5%
### Example Output

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<th>Logical Reasoning</th>
<th>Interpersonal Sensitivity</th>
<th>Finish Time</th>
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Deloitte Reinvents Graduate Recruitment Process
Deloitte has taken an innovative step forward in its graduate recruitment process, becoming the first business in Australia to introduce a fully customised, interactive assessment as part of the application process.

MITCHELL TURNER - Tuesday, 01 March 2016

In a collaborative partnership with Australia’s assessment company Talegent, the big four firm has developed a game-based assessment experience for all budding applicants to complete.

by Yolanda Redrup Big four accounting firm Deloitte has waved goodbye to standard
Positive Candidate Experience

Whirlpool - Graduate Testing Online Forum

User #722183  37 posts
Artemis26
I'm new here, please be nice

I did my online test yesterday, thought it was quite fun actually. Got way better for the second part and I think I got 2 or 3 'nailed it!' where I got them all right, but then some I got maybe half only, they kept buzzing out even though I swear they belonged in that spot lol
<table>
<thead>
<tr>
<th>CANDIDATE COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The online testing…very cool and different which i enjoyed”</td>
</tr>
<tr>
<td>“The test was pretty enjoyable”</td>
</tr>
<tr>
<td>“Had a lot of fun in the testing, prefer this to any other type of testing.”</td>
</tr>
<tr>
<td>“Yep loved this type of test.”</td>
</tr>
<tr>
<td>“The test was pretty enjoyable imo. All about logic no comprehension or math bull lol….”</td>
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</table>
“Talegent has really brought this idea to life. They identified the job-relevant competencies that would translate well to be tested via a game interface and designed the questions and game logic”

Tanyth Lloyd | Talent Acquisition Manager
Comparing it to traditional assessments

We matched the gamified campaign with a traditional recruitment campaign:
- Graduates
- Australian Organisation
- Well regarded brand

Found a campaign which shared 31.17% of its candidates with the gamified recruitment campaign.
Innovations in Gamified Assessment

Drop out Rates vs Traditional Assessments

The gamified assessment had lower drop out rates compared to the traditional assessment campaign.
RELIABILITY AND VALIDITY

Do they measure anything?
Distribution of Gamified Assessment Raw Score
Measuring Ability

Item Response Theory Model

Item response theory (IRT) models are often used to measure a ability on cognitive reasoning assessments.

IRT models the probability of answering an item correctly is a function of a candidates ability ($\theta$), the item difficulty ($\delta$), item discriminability ($\alpha$), probability of guessing item ($c$).

IRT models are well supported for the estimation of cognitive ability.

With the Gamified assessment we also saw that a candidates probability of placing an operator correctly was a function of experience with an operator.
Measuring Learning Agility

- Previous assessments have been static.
- Not enabling applicants to experiment or learn.
- The gamified assessment provides applicants with this opportunity enabling the measurement of **learning agility**.
Looking at the response data we can see that applicants differ in the speed with which they learn the operator function.

Some applicants show high levels of learning agility and learn the dynamic systems quickly, while other applicants take more experimentation attempts to learn.
Dynamic IRT Linked to Learning Agility

\[ e^{\alpha(b-\theta-\gamma)} \]

\[ \gamma = \tau(e^{-\lambda \eta}) \]

To account for candidates learning through experimentation we add an additional parameter (\( \gamma \)).

The amount of **acquired learning** (\( \gamma \)) is a function of the operators initial uncertainty (\( \tau \)), number of trails an applicant has had (\( \eta \)) and the speed that the candidate acquires learning (\( \lambda \)).

The impact of operator uncertainty decays as candidates experiment with the operator at an exponential rate determined by the candidate’s learning agility (\( \lambda \)).

This has enabled us to **measure learning agility**.
The reliability of the Gamified Assessment

$$\text{Reliability}(\theta) = \frac{\text{var}[\hat{\theta}] - \text{var}[SE(\theta)]}{\text{var}[\hat{\theta}]}$$

Item parameter estimates were estimated though the Metropolis-Hasting (MCMC) method.

The dynamic item response theory model was fit to candidate data (n = 12,558) with the EAP method.

This provides a measure of the SE(\theta) which can be used to find the reliability.

“… So gamified assessment with Dynamic IRT are a reliable predictor of candidate ability.”
And how valid is gamified assessment…?

As expected is weak correlation with Verbal Reasoning
Verbal Reasoning with $r (248) = 0.11, p < 0.05$

Moderate correlations with
Numeric Reasoning with $r (248) = 0.42, p < 0.01$
Logical Reasoning with $r (248) = 0.41, p < 0.01$

“… and can measure similar abilities to traditional assessments.”
NEXT GENERATION OF GAMIFIED ASSESSMENTS

Where to next?
New technology is opening up a virtual world to assessment developers full of amazing new opportunities to measure abilities and traits in new and engaging ways. In near future developers will create high fidelity immersive simulations of work environments.

These new experiences will provide opportunities to measure new constructs and new challenges.
SUMMARY
Gamified Assessments
Gamified assessments can measure similar abilities to traditional cognitive ability assessments.

Has lower drop out rates than traditional assessments.

Sound reliability and validity.
Applying new psychometric assessment technologies to meet challenges of online recruitment.

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