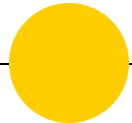


# Utilising Game Design to Create Engaging Educational Environments

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*“If educators were to be skilled as game designers, then they would be better equipped in designing engaging education scenarios”*



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## Aim

- ① Define principles for construction of gameful learning environment
- ② Identify & evaluate tangible metrics for success
- ③ Relate game design principles to pedagogical design



## Gameful environment

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- ◎ **Freedom to fail** – there is no penalty for not completing a game. Similar to a formative assessment.
- ◎ **Rapid feedback** – through peer review and engagement
- ◎ **Progression** – a clear deadline and project goals
- ◎ **Storytelling & narrative** – the objective is the same for all attendee, create a playable game to fit the theme set by GGJ



# Studies

## Pilot

Naturally gamified learning environment

Testing/setting the 8 controls of Mechanics

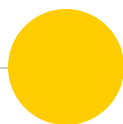
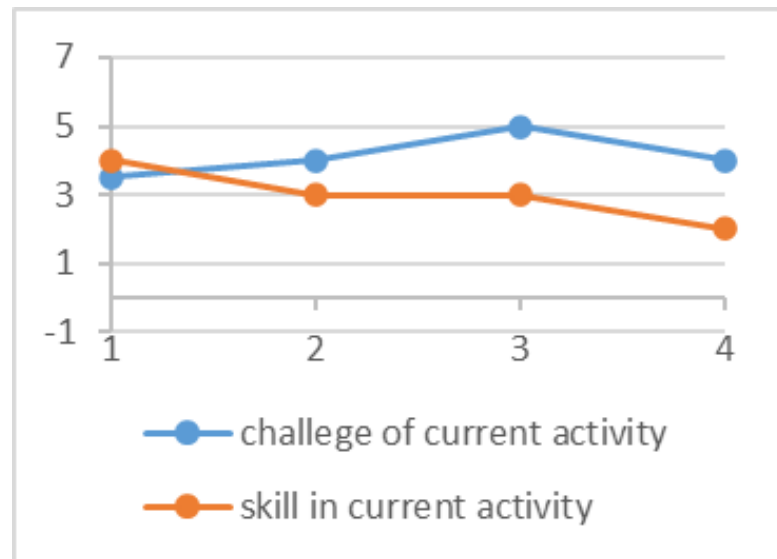
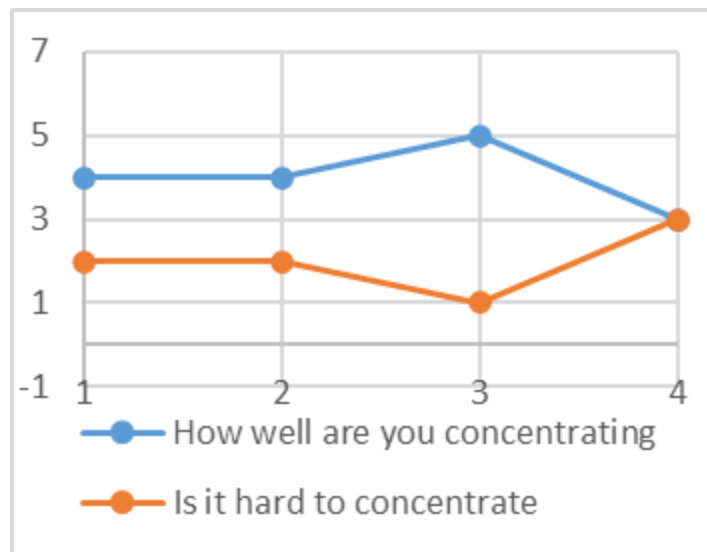
Identification of Metrics

## Core Study

Global Game Jam Participants

ESM at Intervals

48 hours non stop (Friday - Sunday)





## Results

	<b>Mean</b>	<b>Std. Dev</b>
<b>1</b>	4.95	1.045
<b>2</b>	4.47	1.182
<b>3</b>	4.09	1.461
<b>4</b>	3.79	1.473
<b>Total</b>	4.33	1.363

A one-way ANOVA between subjects was conducted to compare the effect on motivation over four samples. The mean for participant engagement in the first sample is 4.95, decreasing in sample 2 to 4.47. The mean decreases again in sample 3 to 4.09 and in sample 4 to 3.79.



## Results

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Identified large positive statistically significant correlations between Engagement & :

- ⦿ Concentration
- ⦿ Happiness
- ⦿ Activeness
- ⦿ Excitedness





## Comparison Results to MDA

- Sensation - Happy/ Excited
- Challenge - Concentration
- Submission - Active



## **Conclusion**

- ◎ Mapping of metrics and methods is feasible
- ◎ Quantification of engagement is core to relationship
- ◎ Further study with use of less intrusive reflective journal approach



## Thank You



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