Playing to Learn: Gamified Assessment Design for Professional Skills Development

Abstract

This case study explores how Dr Javier Fernandez Navarro applied gamification principles into assessment design to enhance student engagement and develop industry-relevant skills. The approach combines an individual portfolio assessment using professional software tools with gamified elements including fantasy league mechanics, strategic card systems, and escape room-style practical sessions. The portfolio requires students to demonstrate competency with industry-standard performance analysis software, creating authentic learning experiences that align directly with professional job requirements. Gamified elements are designed to encourage attendance and participation through structured peer interaction and formative feedback opportunities embedded within practical sessions. Student feedback indicates positive responses to the interactive teaching methods, with the module receiving recognition as "the most interactive" in student evaluations. The approach demonstrates how carefully designed gamification can support authentic professional skill development while maintaining academic rigour. However, implementation challenges include resource requirements for content development and potential scalability concerns for larger student cohorts. This case study offers insights for educators seeking to integrate gamification principles with professionally-relevant assessment design, while highlighting both the potential benefits and practical considerations of such approaches.

Keywords

Gamification, Professional Skills, Portfolio Assessment, Peer Feedback, Escape Room, Formative Assessment, Authentic Learning

The Challenge

Higher education faces multiple pressures in developing students' professional readiness while maintaining engagement. Traditional assessment methods often

struggle to bridge the gap between academic learning and industry requirements, particularly in specialised fields requiring technical software competency. Additionally, attendance and engagement issues persist across many programs, with students often failing to see clear connections between classroom activities and their future careers.

In sports performance analysis education, these challenges are particularly acute. Students need to develop proficiency with industry-standard software while building analytical and communication skills valued by employers. Traditional approaches typically involve disconnected practical sessions and theoretical assessments that may not reflect authentic workplace practices. Furthermore, the technical complexity of professional software can create barriers to learning, while students may struggle to understand how various analytical techniques integrate within real-world performance analysis workflows.

The Innovation

The solution centres on transforming a traditional performance analysis module into an integrated, gamified learning experience that mirrors professional practice while maintaining high levels of student engagement.

Portfolio-Based Assessment Design

The core assessment comprises an individual portfolio (60%) containing six industry-relevant components:

- **Code Window**: Performance analysis dashboards using professional software
- **CSV Data Export**: Working with real performance data sets
- **Technical Reports**: Analytical writing based on practical sessions
- **Video Playlists**: Curating and analysing performance footage
- **Tableau Dashboards**: Data visualization using industry-standard tools

Each component directly corresponds to skills identified in actual performance analysis job descriptions, ensuring authentic professional relevance. Students complete portfolio elements during structured practical sessions, creating immediate connections between learning activities and assessment requirements.

Gamification Framework

Fantasy League System: Students select football, NBA, and cricket teams at the module's start, earning points (not grade marks) based on real-world performance

throughout the semester. This creates ongoing engagement beyond individual sessions while introducing strategic thinking about performance analysis concepts.

Strategic Card System: There were 2 sets of cards used in the module. One set appears in the Canvas module site that links to the points the students can accrue for a leaderboard; and the other set was used in the technique analysis practical session (the escape room style one). These cards are used for additional motivation, as an example, the practical session cards included:

- **Consultancy Cards**: Access to expert guidance during complex tasks
- **Analytics Department Cards**: Technology support for calculations
- **Peer Learning Cards**: Structured opportunities to collaborate with other teams
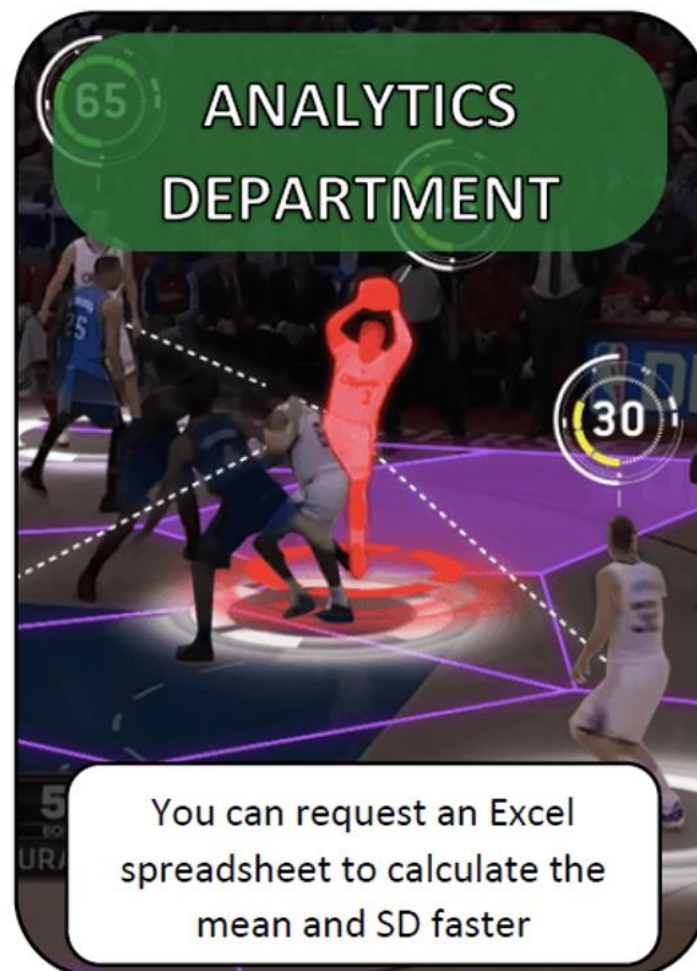- **Scout Cards**: Ability to observe and learn from other groups' approaches

Image 1: An example card showing the name of the card and the rules but which it can be applied.

Escape Room Practical: Complex learning objectives are structured as problem-solving challenges requiring task completion and checkpoint validation before progression. This transforms traditional practical sessions into engaging, collaborative experiences while maintaining clear learning outcomes. These were held in the LJMU Sports Hall.

Integrated Feedback Design

The approach embeds multiple feedback mechanisms within the gamified structure:

- **Real-time feedback** through checkpoint discussions during escape room sessions
- **Peer feedback** facilitated through strategic card usage
- **Technology-assisted feedback** via pre-built calculation tools
- **Instructor feedback** delivered through the "game master" role during practicals
- **Self-assessment opportunities** as students track their progress through portfolio development

The gamification elements serve pedagogical purposes rather than mere entertainment, creating structured opportunities for collaboration, peer learning, and formative assessment within an engaging framework.

Impact and Outcomes

The gamified approach demonstrates measurable effects on student engagement and learning experiences, though outcomes must be considered within the specific context of a relatively small cohort and specialized subject area.

Student Engagement Indicators

Student feedback provides evidence of enhanced engagement with the learning process. Module evaluations show 94% overall satisfaction, with specific recognition of the interactive teaching approach. One student noted: *"This is probably the most interactive module I've been apart of, a large part of it to Javi as he puts a lot of effort in making all sessions engaging through various ways of teaching."*

The gamification elements appear to achieve their intended purpose of balancing educational value with engagement, with surveyed students agreeing that gamified elements struck an appropriate balance between fun and learning objectives.

Professional Skills Development

Student responses indicate recognition of the career-relevant nature of the portfolio approach. Comments highlight appreciation for working with industry-standard software: "Being able to use the Hudl software is very interesting and incredibly useful to become apt at using, the practicals are fun and engaging."

Conclusion

This case study demonstrates how gamification principles can be strategically integrated with authentic assessment design to create engaging learning experiences that develop industry-relevant skills.

The key innovation lies not simply in adding game elements to traditional teaching, but in creating a coherent framework where gamification serves specific pedagogical purposes: structuring collaboration, providing formative feedback opportunities, and maintaining engagement with complex technical content. The strategic card system, in particular, offers a novel approach to facilitating peer learning and creating structured opportunities for knowledge sharing within practical sessions.

However, the approach's effectiveness appears closely tied to careful implementation, significant resource investment, and ongoing refinement based on student feedback. The success also depends on alignment between gamified activities and authentic professional practices, suggesting that similar approaches would need adaptation for different disciplinary contexts.

The case study suggests that when thoughtfully designed and adequately resourced, gamified assessment approaches can effectively address traditional challenges around engagement and professional relevance while maintaining academic rigour and supporting diverse learning needs.