

Gamification & Environmental Education

Principles of Gamification

There are 16 learning principles that good games incorporate which can be applied to educational contexts. They are:

1. **Identity;** good games allow players to explore their own identity through the use of a character.
2. **Interaction;** games are interactive and reactive to player input (educators must ensure that they, as well as the resources they employ, are reactive to student actions).
3. **Production;** players are producers, and as such students should be producing content, learning goals, and curriculum.
4. **Risk taking;** lowered consequences for failure encourage exploration in students and game players alike.
5. **Customization;** challenges are well suited to individual student needs, skills, and knowledge.
6. **Agency;** give students voice, choice, and control.
7. **Well-ordered problems;** early challenges prepare students for future, more complex problems.
8. **Challenge and Consolidation;** provide opportunities for practice and repetition before moving on.

Adapted from: Gee, J. P. (2005). Good Video Games and Good Learning. Phi Kappa Phi Forum, 85(2), 33-37.

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9. **Just-in-time information; teach new concepts only when students are ready.**
10. **Situated meanings; anchor new concepts to real experiences.**
11. **Pleasant frustration; provide work that is challenging, but not frustratingly so.**
12. **System thinking; teach students about relationships, not isolated facts and skills.**
13. **Lateral thinking; explore new concepts thoroughly before moving on (especially student inquiries).**
14. **Distributed knowledge; provide opportunities for collaboration, mentorship, and sharing.**
15. **Cross-functional teams; help students to learn about their classmates and their unique strengths.**
16. **Performance before competence; allow students to participate before they are experts at something.**

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