

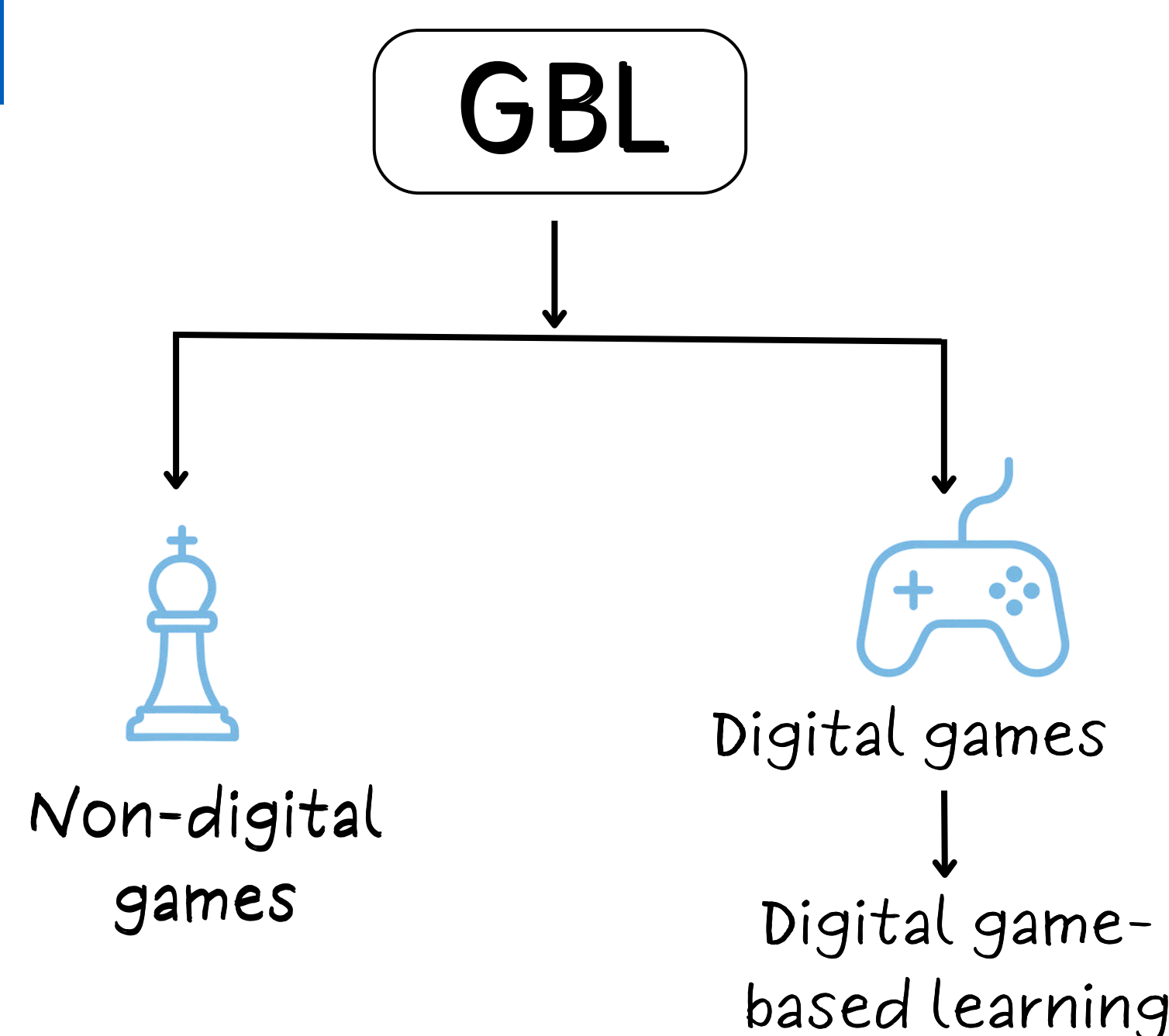
Game-based Learning

Simply Explained

Prepared by Med Kharbach, PhD
www.educatorstechnology.com

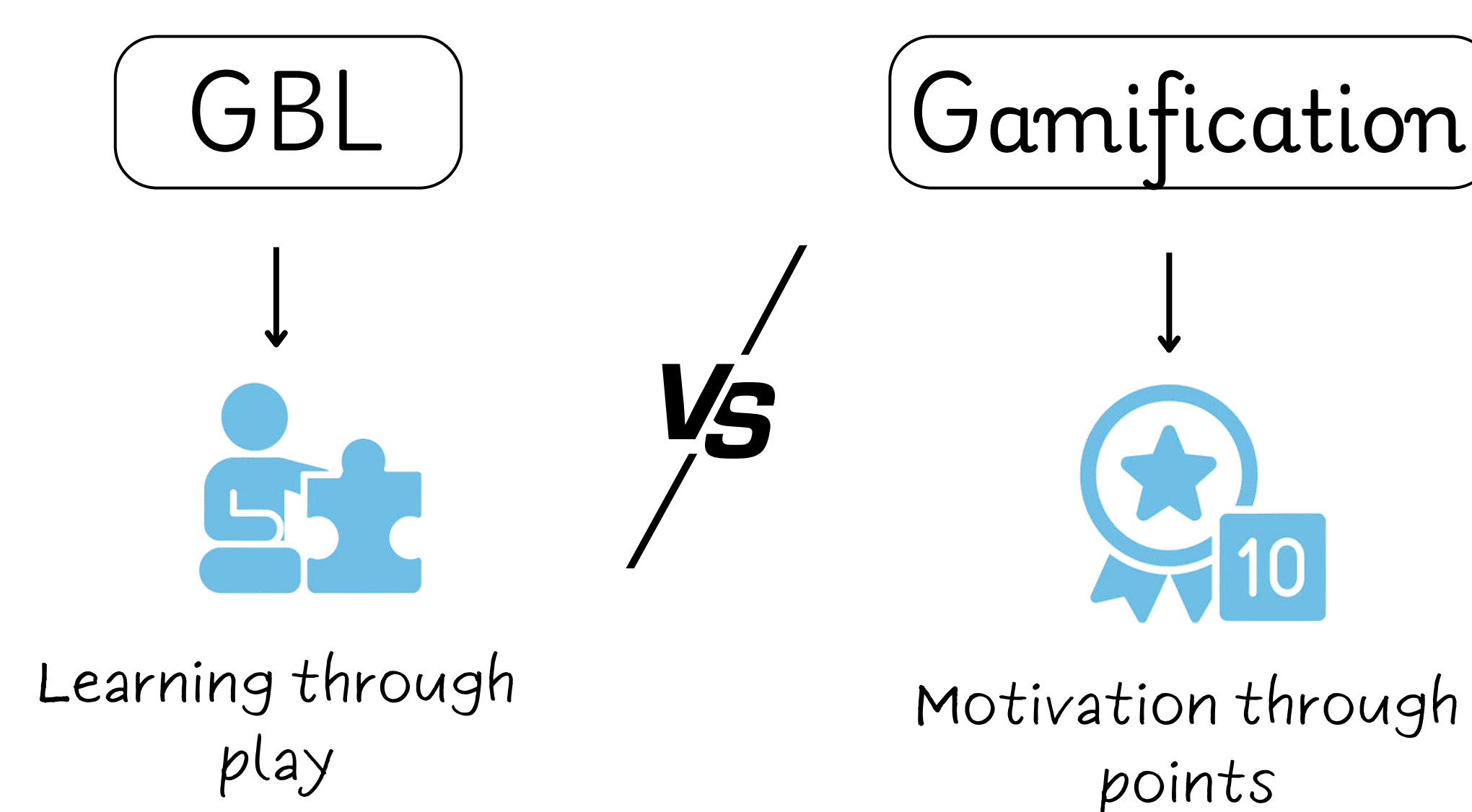
What is Game-based Learning?

Game-Based Learning (GBL) refers to the use of games in educational contexts to achieve defined learning outcomes. GBL can involve digital or non-digital games and emphasizes gameplay that is intrinsically tied to instructional content, meaning the game is both fun and educational. When we exclusively use digital platforms for this purpose, it is called Digital Game-Based Learning (DGBL), which leverages technology to create interactive, immersive, and data-rich learning experiences.



Game-based Learning Vs Gamification

GBL is distinct from gamification. Gamification typically adds game-like rewards to conventional activities (e.g. points for homework), whereas GBL redesigns learning tasks into game form with rules, challenges, and feedback. In practice, this means GBL prioritizes meaningful play aligned with curricular goals, not just superficial rewards. (Plass et al. 2015)



Active & Experiential Learning

- Provides hands-on, experiential learning where knowledge is gained through direct action and interactive problem-solving (Shaffer et al., 2005).

Identity Exploration

- Allows learners to experiment with new identities, promoting empathy, perspective-taking, and personal growth (Shaffer et al., 2005).

Social Interaction and Collaboration

- Fosters collaboration, negotiation, and teamwork through multiplayer interactions (Shaffer et al., 2005)

Benefits of Game-based Learning

Cognitive Engagement

- Supports cognitive processes like critical thinking, memory retention, and spatial reasoning (Plass et al., 2015)
- Encourages the construction of mental models that integrate new knowledge with prior understanding (Plass et al., 2015)

Immediate Feedback & Dynamic Assessment

- Offers real-time feedback, allowing learners to adjust strategies and improve performance (Plass et al., 2015)
- Reduces the need for traditional testing by integrating assessment into gameplay (Plass et al., 2015)

Motivation & Emotional Connection

- Increases learner motivation through challenges, rewards, and immersive narratives (Plass et al., 2015)
- Creates emotional connections that enhance engagement and retention (Lazzaro, 2014)

Development of Soft Skills

- Trains critical soft skills like communication, leadership, conflict resolution, and decision-making (Keary et al., 2016)
- Multiplayer platforms like S-Cube provide realistic practice for these skills in social enterprise contexts (Keary et al., 2016)

Situated & Contextualized Learning

- Provides context-rich environments where knowledge is deeply tied to real-world applications (Shaffer et al., 2005)
- Bridges the gap between theoretical knowledge and practical skills (Shaffer et al., 2005)

Theoretical Foundation of Game-based Learning

Behaviorism

- Focuses on reinforcement, feedback, and stimulus-response mechanisms.

Constructivism

- Stresses active, learner-centered experiences where knowledge is constructed through interaction with the environment.

Cognitivism

- Emphasizes the role of mental processes in understanding and retaining information

Sociocultural Theory

- Focuses on the role of social interaction and cultural context in learning.

Clear Goals and Purpose

A game should have specific learning objectives that guide player actions.

Meaningful, Context-Rich Environments

A game should place learning in realistic scenarios, making knowledge relevant and practical.

Active, Problem-Based Learning

A game should engage players in solving meaningful problems and applying knowledge in context.

Elements of Effective Educational Games

Based on James Paul Gee (2004)

Safe Space for Failure

A game should encourage experimentation and learning from mistakes without real-world consequences.

Identity and Role Play

A game should allow players to adopt meaningful roles that shape their learning experience.

Immediate Feedback and Reflection

A game should provide timely feedback and encourage players to reflect on their actions and strategies.

Scaffolded and Progressive Learning

A game should break complex tasks into manageable steps, gradually increasing in difficulty as players build skills.

High Development Costs

Resource-intensive, requiring specialized skills and collaboration (Keary et al., 2016).

Cognitive Overload & Transfer Issues

Complex environments can overwhelm learners, and skills may not always transfer to real-world contexts (Plass et al., 2015; Shaffer et al., 2005).

Game-based Learning Limitations

Assessment Challenges

Traditional methods often struggle to capture the open-ended learning in games (Plass et al., 2015).

Cultural & Psychological Risks

Potential for cultural bias and negative effects like addiction (Shaffer et al., 2005; Lazzaro, 2014).

Access Inequality

Unequal access to technology can create learning gaps (Shaffer et al., 2005).

References

- Gee, J. P. (2004). *Situated language and learning: a critique of traditional schooling* (1st ed.). Routledge.
- Gee, J. P. (2004). *What video games have to teach us about learning and literacy* (1st Palgrave Macmillan paperback ed.). Palgrave Macmillan.
- Keary, A., Sweeney, T., & Sykes, G. (2016). Using Online Role-Playing Games for Entrepreneurship Training. In *Digital Game-Based Learning for Business and Entrepreneurship* (pp. 151-167). Springer.
- Lazzaro, N. (2014). *Why We Play Games: Four Keys to More Emotion Without Story*. In *Game Usability: Advancing the Player Experience* (pp. 147-162). CRC Press.
- Plass, J. L., Homer, B. D., & Kinzer, C. K. (2015). Foundations of Game-Based Learning. *Educational Psychologist*, 50(4), 258-283. <https://doi.org/10.1080/00461520.2015.1122533>
- Shaffer, D. W., Squire, K. R., Halverson, R., & Gee, J. P. (2005). Video Games and the Future of Learning. *Phi Delta Kappan*, 87(2), 104-111. <https://www.jstor.org/stable/20444942>