How video games can improve your coaching

Background

Good video game design allows users to have meaningful experiences that provides plenty of opportunity to be challenged, learn from mistakes all in a fun and engaging environment.

With this knowledge, Gee (2005) set out to test whether 13 principles of good video design could be applied to learning across various domains, including sport coaching. The principles are organised into 3 themes, based on the intention of the principle.

Insights for coaches to empower learners

Principle

Co-design: This involves including the participants in the design of the learning activities. Participants are more likely to engage with the activity since they feel like their actions and decisions are their own.

Customise: The coach needs to recognise the most effective way to deliver information may not be the same for every participant. How this is done needs to reflect the needs and motivations of their participants.

Identity: This is all about allowing the participants to become invested in or create an identity.

Manipulation and distribution of knowledge: Participants are provided with the opportunity to manipulate and explore their environment and how this allows them to achieve their objectives.

Application

- A rugby league coach could devise new attacking plays with the key playmakers of the team.

- A semi-experienced gymnast learning to complete a flyaway to dismount from the uneven bars may benefit from minimal direction from the coach to allow them to figure out the best way to move their body through space.

- An up-and-coming young tennis player may want to style their playing style and on field persona to that of a number of successful players they see on the television.

- During a game-based session, a cricket coach might have all participants field in every fielding position to widen the skills and knowledge players have of each position.

Insights for coaches to build problem-solving skills

Principle

Well-ordered problems: Make sure that the complexity of the problems participants are trying to solve matches their ability and evolves with them.

Pleasantly frustrating: This requires a coach to create activities that participants feel hard but still doable, enough that they can recognise they are making progress.

Cycles of expertise: Participants learn new skills up to a point where they are challenged and need to learn new skills to overcome the challenge.

Information 'on-demand' and 'just in time': The information that participants have access to is provided when they need it and when they can use it.

Fish tanks: The coach creates simplified practice tasks or environments to allow participants to explore their abilities.

Sandboxes: This is all about creating an environment that feels like the 'real thing' but minimises potential risks and dangers to allow participants to feel a sense of accomplishment.

Skills as strategies: The skills required to complete a task are not learned in isolation, they are learned in a similar context to the competitive environment.

Application

- Before being able to complete the more eye-catching manoeuvres, a surfing coach will have their participants work through more basic and intermediate manoeuvres to ensure that have the necessary knowledge and skills.

- In trying to expand the participants ability to get out of tough lies, a golf coach may gradually increase the difficulty by limiting the clubs available or placing the ball in more challenging positions.

- In touch football, a team that relies on one successful attacking play may need to practice new ways of scoring to be able to adapt when facing strong defensive teams.

- When using a series of increasingly more challenging activities, a basketball coach might decrease the information available about the activity the further into the activities the participants go.

- A rugby union coach might decrease the number of defenders during game-based activities to allow the attacking team to recognise where to run and when to pass a little easier.

- When transitioning from flat to white water, a slalom canoe coach might have their participants navigate through each gate as downstream to build their confidence in the new environment.

- Instead of practicing handballing whilst stationing to a partner, a coach could use activities where the players need to run around and handball to teammates.

Insights for coaches to improve understanding

Principle

System thinking: Participants learn best when they can see the bigger picture, this gives meaning to the smaller activities they might perform.

Meaning as action image: Using a metaphor or analogy to link the action they are performing with the experience a participant is having (or will have).

Application

- Instead of just having the goalkeeper and goal defence complete an activity that just requires them to stop a goal from being made, the activity could require them to defend the goal but follow this with getting the ball to their teammates and practicing an attacking play.
- When learning how to move their body under the water from a start, a coach might tell their swimmers to 'Pretend they are a missile moving through the water' so they get into a good, streamlined position.

Source material

Gee, J. P. (2005). Learning by design: Good video games as learning machines. E-learning and Digital Media, 2(1), 5-16.

Learning by Design: Good Video Games as Learning Machines (sagepub.com)

Robertson, S., & Woods, C. T. (2021). "Learning by design": what sports coaches can learn from video game designs. Sports Medicine-Open, 7(1), 1-8.

"Learning by Design": What Sports Coaches can Learn from Video Game Designs | Sports Medicine - Open | Full Text (springeropen.com)

More information

Read the full research paper or learn more about the modern approach to coaching on the Australian Sports Commission website.