

Gameful learning experiences for transdisciplinary education and problem solving

ANU Learning & Teaching Showcase – 10 September 2026
Thomas Biedermann



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Walbiri

'wal-bir-i'

BALL CONE
BOTTLE





Choose your own collective adventure

Games as
models...

Games as
communication
...

Game design as
a tool

Q&A

Systems,
futures and
games

Systemic
gameful
design



Games as
metaphors...



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You steer – how this will work

Option 1

Option 2



Pollev.com/tandl26

Systems, futures and games



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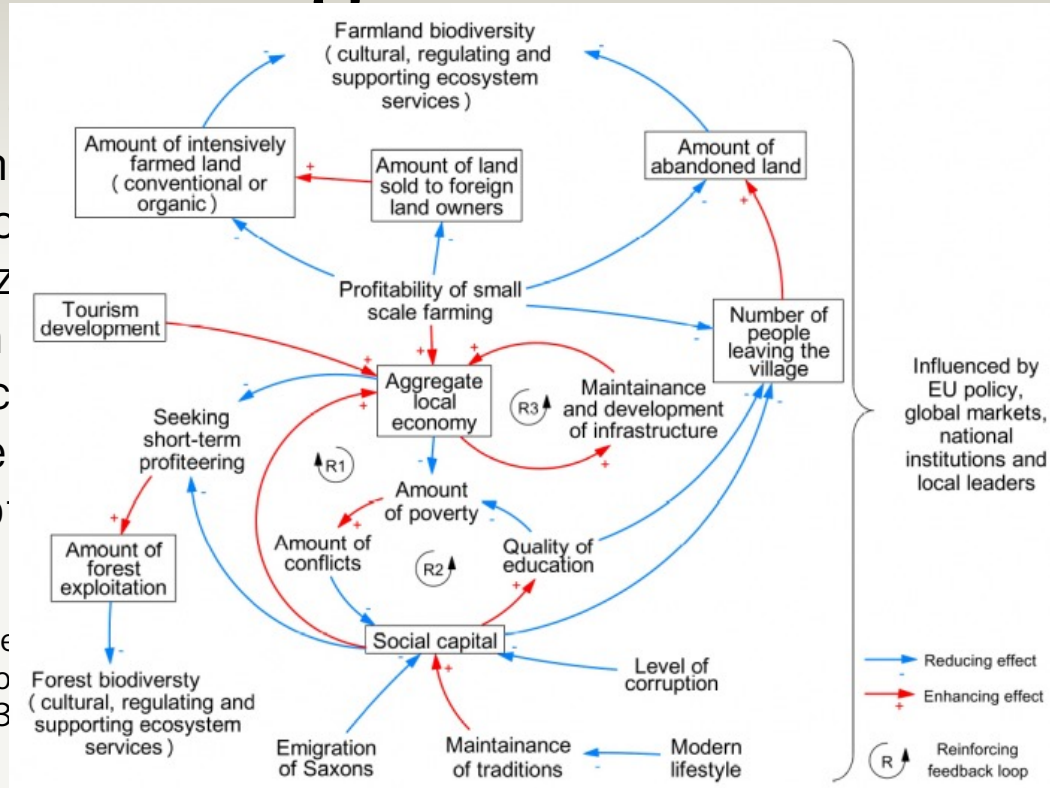
Systems, futures and games



Dennis L. Meadows,
System Dynamics

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Systems, futures and games



Sohail Inayatullah
Futures Studies

“Thus, gaming helps access disowned aspects of strategy. [...] This is crucial as the disowned can later emerge to sabotage the plan or the policy. Robustness is lost as the self who implements is different from the self that creates.

Gaming also leads to emergence.”

Inayatullah, S. (2017). Gaming, ways of knowing, and futures. *Journal of Futures Studies* 22(2), 101–106. [https://doi.org/10.6531/JFS.2017.22\(2\).E101](https://doi.org/10.6531/JFS.2017.22(2).E101)

Games as cultural artefact

Games industry worldwide ~ USD 500bn revenue

- More than twice music and film combined

Growing demand for diverse gaming experiences, reflecting cultural backgrounds and values

- Integrate regional folklore and traditions
- Inclusive narratives and representation

Statista Market Insights

<https://www.statista.com/outlook/amo/media/games/worldwide/?srsltid=AfmBOooTKT2x091oJSzZ4FrdFf1wpF1RWhAD0CslSttphVgL7Ah-CCrC>



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Key findings

75%
of parents have
rules around play



Over
70%
of parents are aware
of family controls and
in-game controls

89%
of parents play
with their children to
connect as a family



74% of Australian
households have
2 OR MORE GAME DEVICES
with the most popular being a console



82% UP FROM 81%
of all Australians play
video games

51% UP FROM 48%
FEMALE
more women and
girls are playing than
ever before

The average age of video
game players in Australia is

35 YEARS

81% of all players in
Australia are
AGED 18+



Australians play games to...



Australians play games for personal growth to:

1. Create feelings of enjoyment
2. Bring joy
3. Stimulate the mind



Australians play games for mental wellbeing to assist in:

1. Building resilience
2. Managing stress
3. Building self-confidence



AUSTRALIAN PARENTS...

...play games with children because:

1. Games are a fun way for the family to connect
2. Games provide a way to spend time together
3. A child asks their parent to play games with them



...let their children play games because:

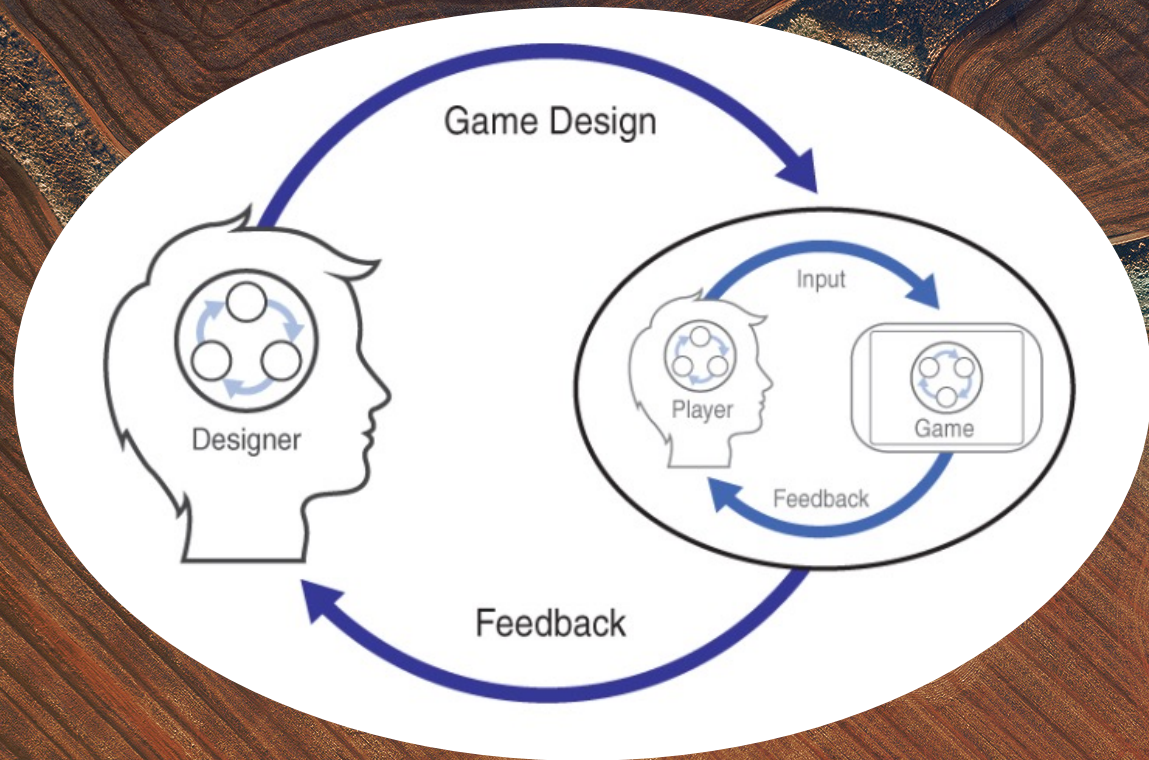
1. It's a fun way to learn
2. They can improve problem solving skills
3. To encourage creativity

Australian video game players' TOP GENRE CHOICES:



1. ACTION/ADVENTURE
2. PUZZLE
3. SHOOTER & SPORT

Systemic gameful design



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GAMES, GAME-BASED, GAMIFIED

- A **game** or structured play consisting of rules, goals, and challenges that are undertaken for diversion or amusement. This includes non-digital as well as digital/video games.
- **Game-based learning** and achieving defined learning outcomes through game content and play.
- **Games for impact** which are games designed with the primary goal of achieving a positive outcome beyond entertainment.
- **Gamification** and use of game elements in non-game contexts such as earning points or badges.
- **Simulations** which mimic real world situations and provide authentic experiential learning a failure-safe environment.

Threlfall, D., & Althaus, C. (2025). Games and gamification projects in the Australian public sector. Australian Journal of Public Administration, 1–21. <https://doi.org/10.1111/1467-8500.70022>

GAMEFUL EXPERIENCE

A psychological state resulting from the interaction of three psychological characteristics:

1. a person perceives non-trivial achievable goals created externally,
2. is motivated to pursue them under an arbitrary set of behavioral rules,
3. and evaluates that motivation as voluntary.

R.N. Landers, G.F. Tondello, D.L. Kappen, A.B. Collmus, E.D. Mekler, L.E. Nacke (2019) Defining gameful experience as a psychological state caused by gameplay: replacing the term 'Gamefulness' with three distinct constructs. Int. J. Hum. Comput. Stud., 127, pp. 81-94, <https://doi.org/10.1016/j.ijhcs.2018.08.003>

Presents & Futures

Axes of work

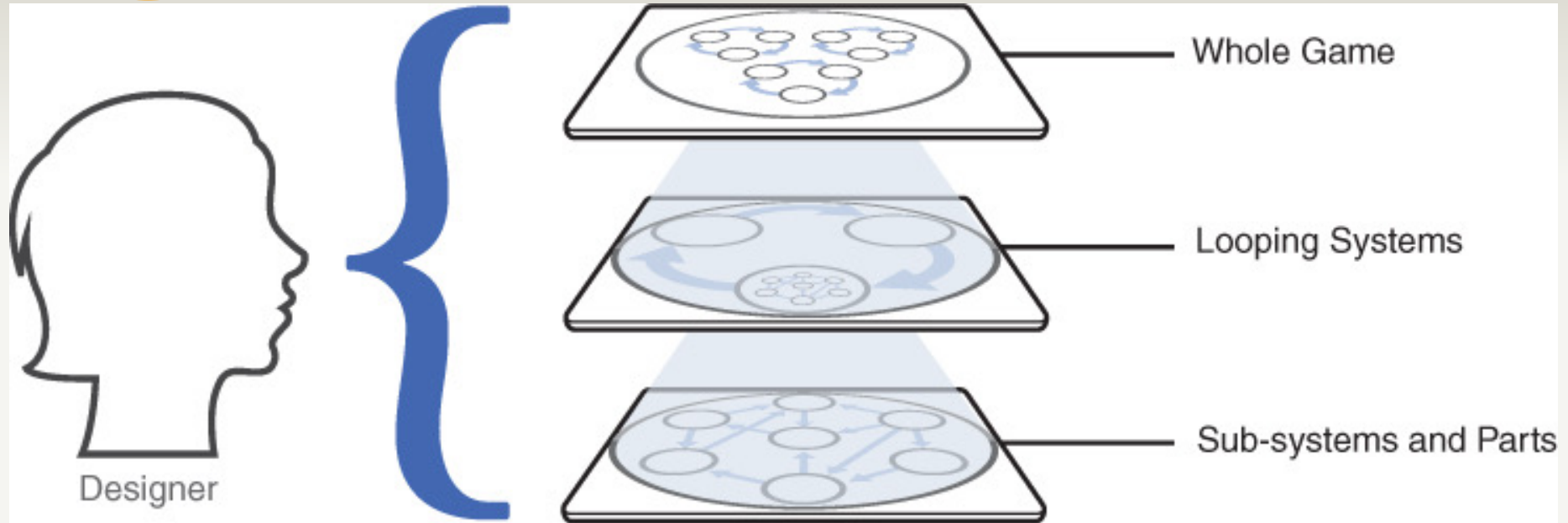
1. **Gaming Systems:** Design and evaluate games and gameful experiences to engage participants in systemic thinking & action
(health, sustainability, futures thinking)
2. **Gaming the Systems:** Explore game design as a method for participatory system modelling
(community, leadership)



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Game (as) system



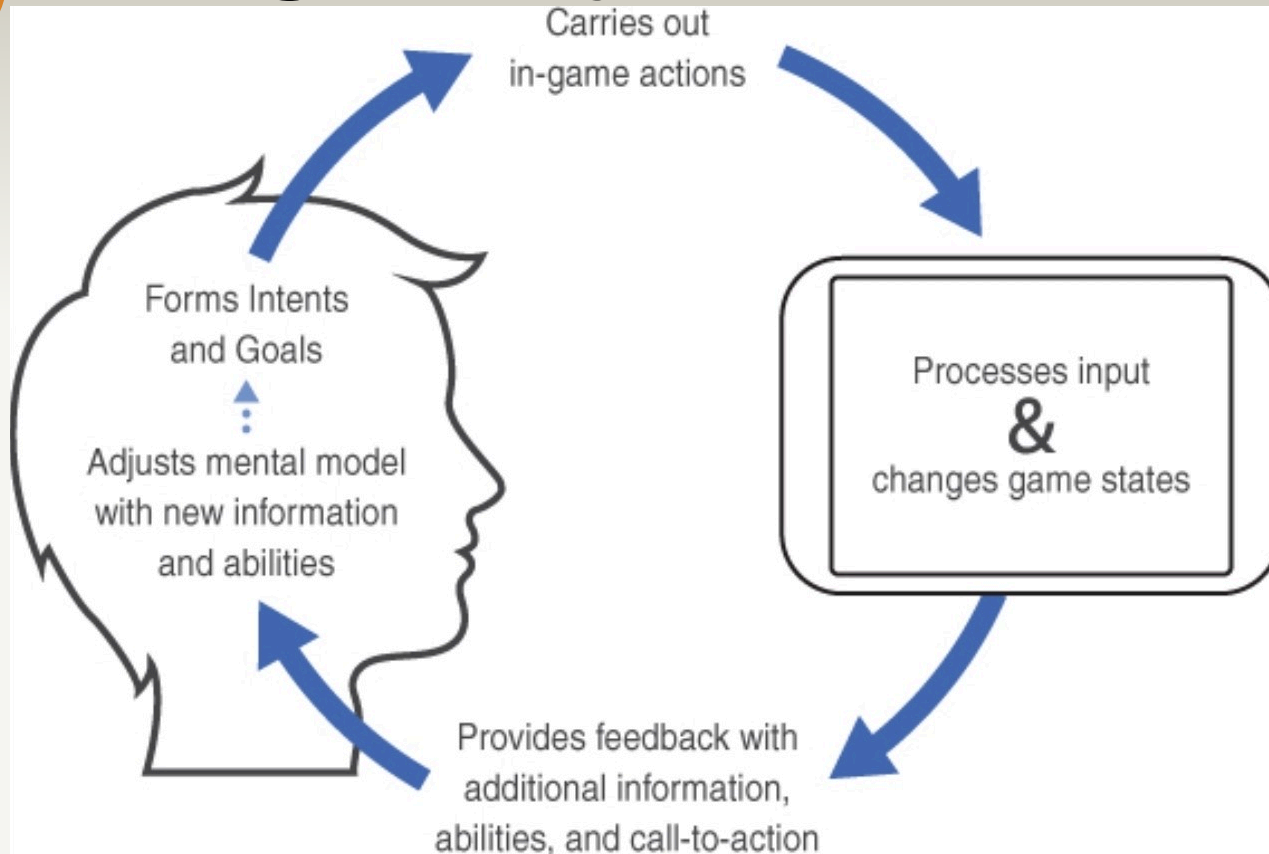
Sellers, M. (2017) Advanced Game Design: A Systems Approach. Addison-Wesley Professional



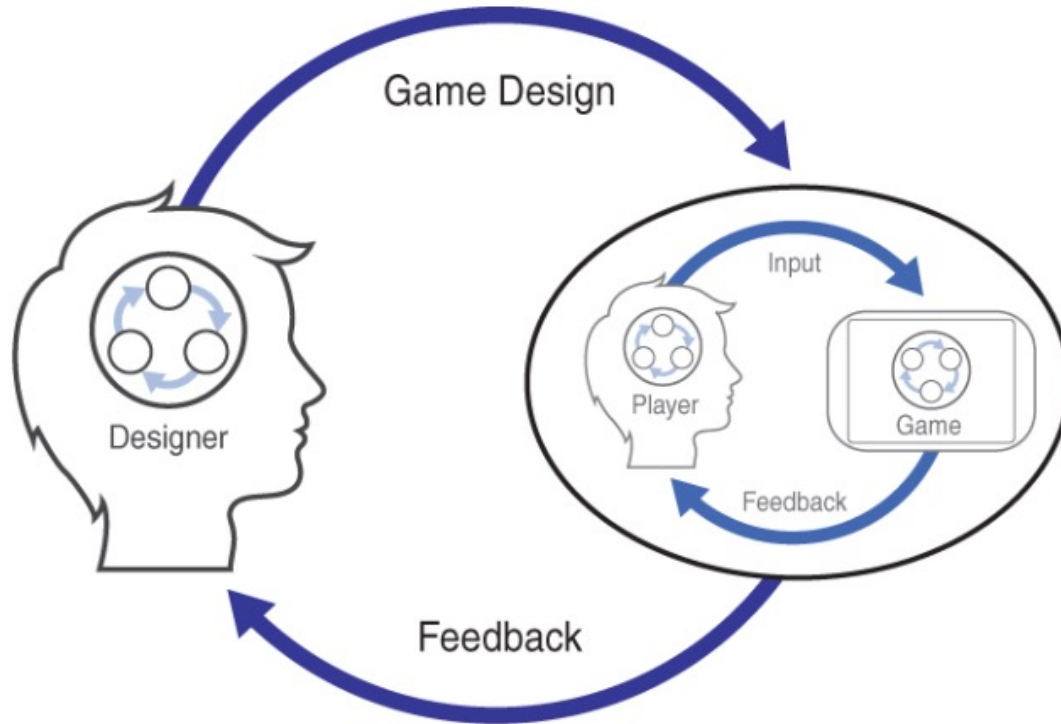
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(Player(s) + game) system



Game design system



Games as...



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You steer



Games as
communication



Games as
models



Games as
metaphors





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Visual settings



Edit



Join by Web PollEv.com/tandl26 Join by Text Send [tandl26](https://PollEv.com/tandl26) to +61 427 541 357



Where to next?

0%

(A)

Games as models

0%

(B)

Games as communication

0%

(C)

Games as metaphors

Powered by  Poll Everywhere



You steer

Games as
models

Games as
communication

Games as
metaphors

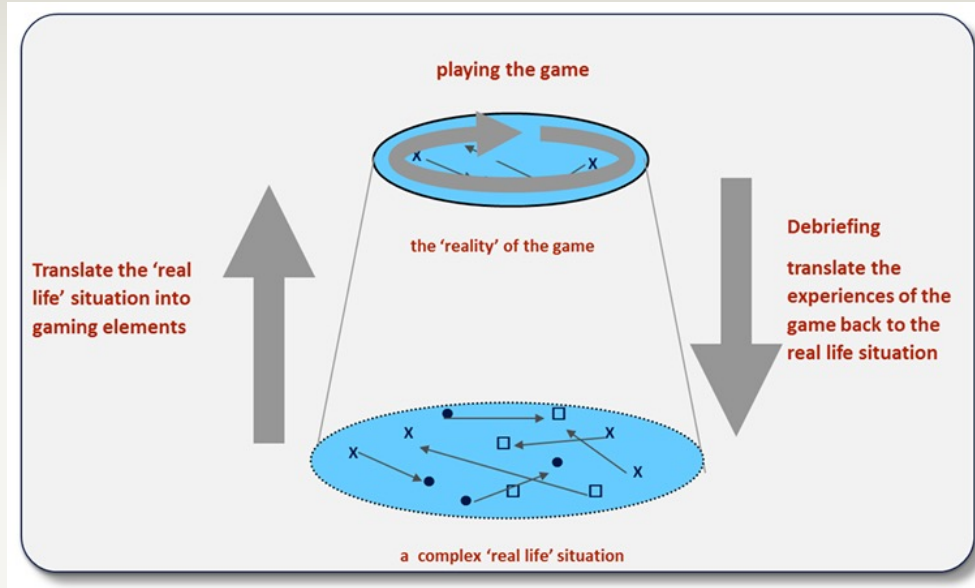


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Games as ... models

Simulation game as model of the complex reference system, developed for a defined purpose



Gaming is successful in policy making (regulation) thanks to gaming's unique ability to capture and integrate **physical-technical** and **social-political** complexities of policy problems & enabling play.

Mayer, I. S. (2009). The Gaming of Policy and the Politics of Gaming: A Review. *Simulation & Gaming*, 40(6), 825-862.

<https://doi.org/10.1177/1046878109346456>

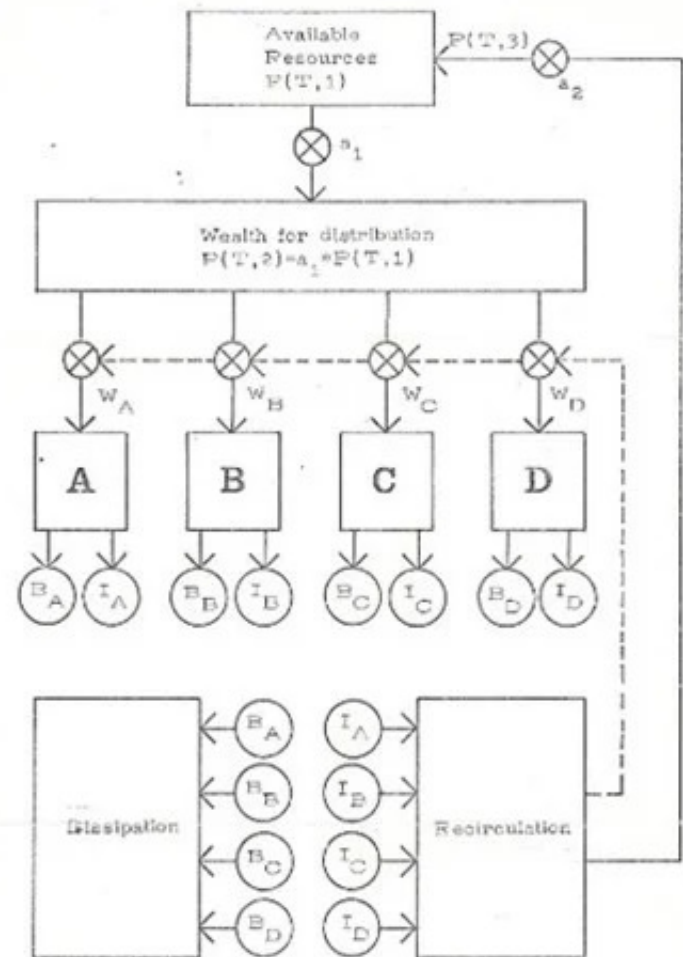
From Peters, V., & van de Westelaken, M. (2014). *Simulation games: A concise introduction to the design process*. Information on Simulation Games.



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ECOGAME



CYBERNATIONS





Onwards



Game design as
a tool

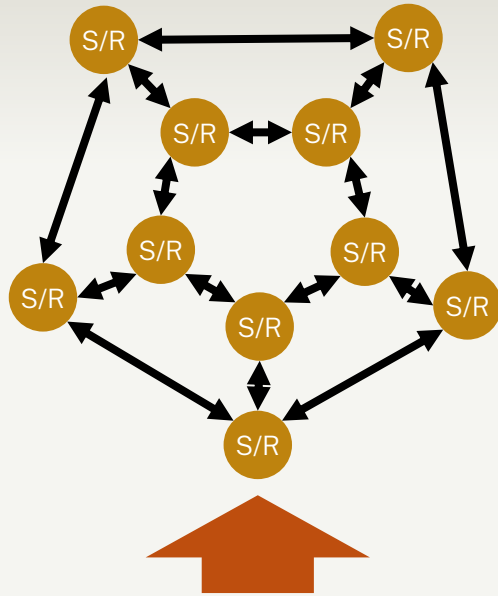


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Games as ... communication

Games require adopting a shared language for effective
(multidirectional) communication.



...in the case of analog games, their potential in promoting soft skills, with a particular focus on **communication and collaboration**, seems to stand out as the main outcomes...

Sousa C, Rye S, Sousa M, Torres PJ, Perim C, Mansuklal SA and Ennami F (2023) Playing at the school table: Systematic literature review of board, tabletop, and other analog game-based learning approaches. Front. Psychol. 14:1160591. <https://doi.org/10.3389/fpsyg.2023.1160591>

Adapted from Duke, R. D. (1974). Gaming: The future's language. Beverly Hills, CA: SAGE Publications.



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Print & play version, MOAD

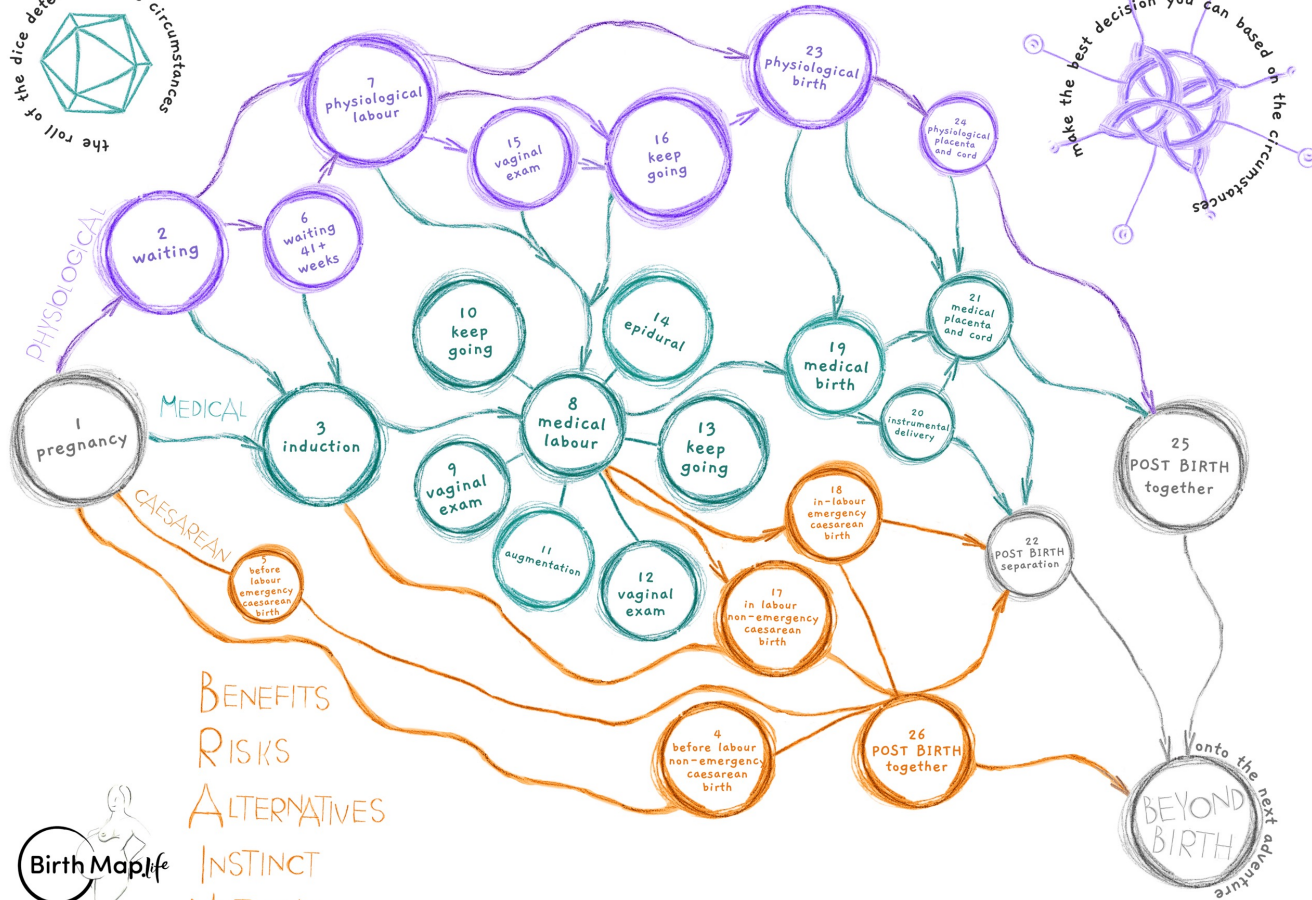
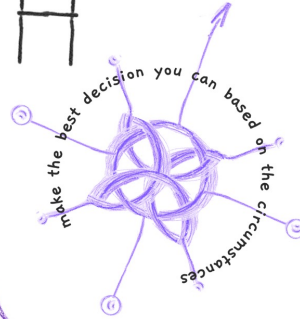
<https://moad-web.s3.amazonaws.com/heracles-production/895/cf2/4fa/895cf24fa4f46a015e46d33b8fbe9fcad01105e8803a51f7541b16560246/Pank-a-Squith%20Board%20Game.pdf>



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THE GAME OF BIRTH



Dr Catherine Bell,
The Game of Birth
<https://birthmap.life/the-game/>



Onwards



Game design as
a tool

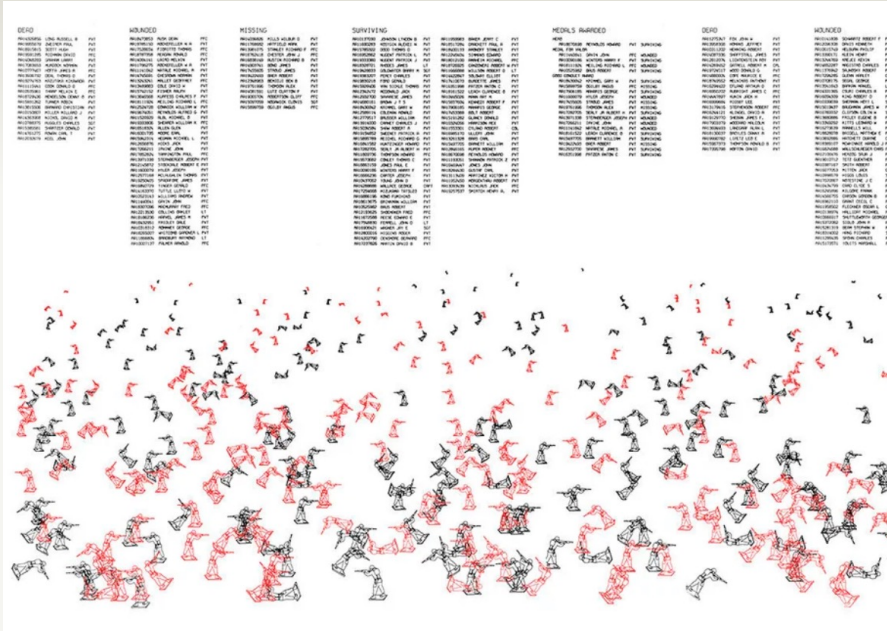


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Games as ... metaphors

Games permeate human cultures and languages, making them good candidates to transfer concepts and skills, enabling broader participation.



Csuri, C. (1967) *Random War* (detail)

“Games can be used to model systems because they are themselves systems. [...] These systems, often unseen and misunderstood, haunt our world. Board games turn these ghosts into pieces of cardboard we can see, touch, and manipulate.”

Holland, A. (2025). *Cardboard Ghosts: Using Physical Games to Model and Critique Systems* (1st ed.). CRC Press.
<https://doi.org/10.1201/9781003500834>



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A photograph of children's hands interacting with a museum exhibit. The exhibit consists of a dark table with several white plates, each containing a few small, colorful geometric blocks (red, yellow, green, blue). A child's hand is seen placing a green block onto a white plate. Another child's hand is visible, holding a blue plate with a green block. In the foreground, there is a white plate and a card with a grid of colorful shapes. The background is slightly blurred, showing more of the exhibit and other children's hands.

found in translation

BoHo Interactive
Found in translation

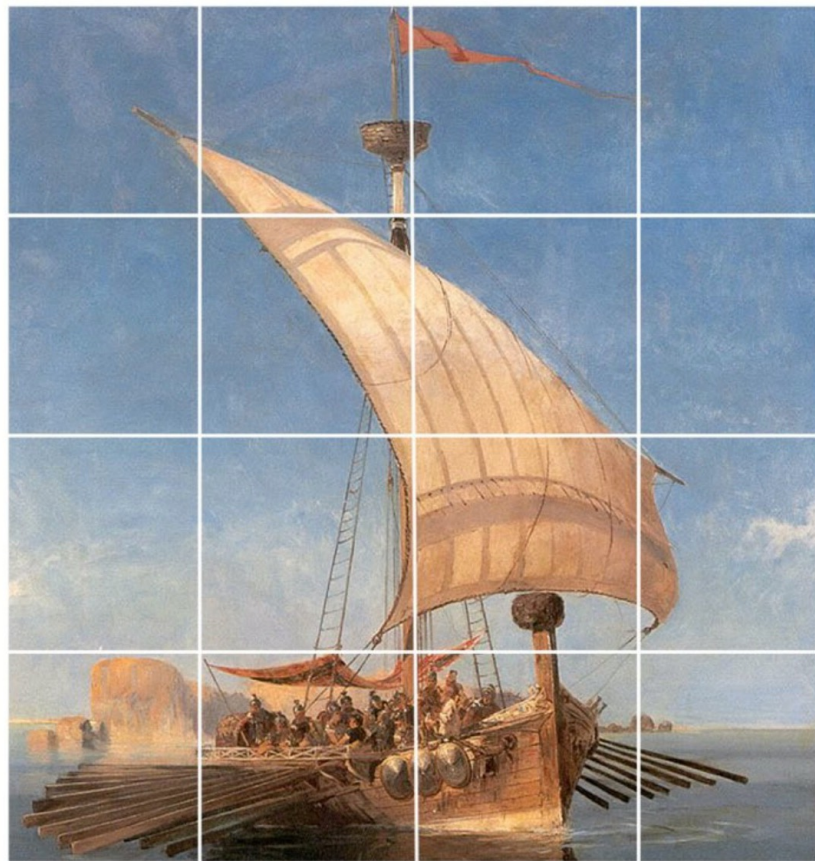
<https://bohointeractive.com/found-in-translation>

The Theseus Ship

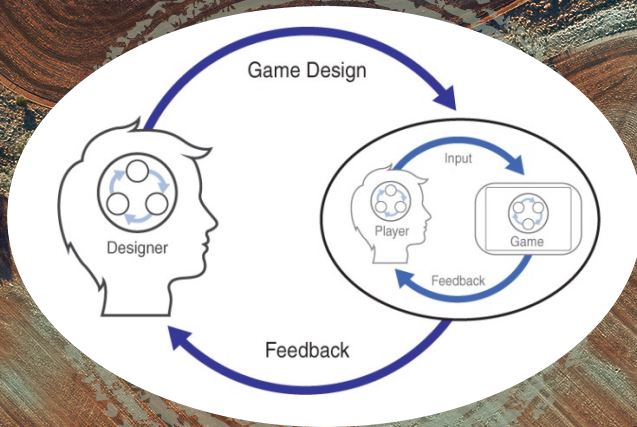
Oceania Futures & Foresight Symposium,
Meanjin / Brisbane – March 2026



Select all squares with
the ship of Theseus
If there are none, click skip



Game Design as tool...



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Rapid Game Design for participatory systems mapping

Hong Kong Baptist University Global Study Tour –
hosted at ANU McCusker Institute, June 2026



Rapid Game Design for participatory systems mapping

Hong Kong Baptist University Global Study Tour –
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ANU Gameful learning workshop



Join us

Friday 2 October, 10am – 3pm (catered)
McCusker Institute, John Yencken Bldg

<https://events.humanitix.com/anu-gameful-learning-workshop>



Gameful Learning Community of Practice

Systems,
futures and
games

Systemic
gameful
design

Games as
models...

Games as
communication
...

Games as
metaphors...

Game design as
a tool

Q&A



Thank you Q&A

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