

# 9. Serious Games

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Serious Games are games in a broad sense with a serious topic, where the intention is to create not only game enjoyment but also a learning experience. Typically, Serious Games are designed to teach citizens about complex, systemic topics such as climate change. Serious Games include all forms of games, including computer games, board games, card games, role-plays, games in Virtual Reality or any other form of learning experience that includes game elements.



## SERIOUS GAMES AT-A-GLANCE

- Facilitate experiential learning, are creative, and can be social.
- Require proper equipment, hardware, and/or software, (possibly) internet connection, (possibly) previous gaming experience.



## Benefits

1. Allow safe, experiential learning.
2. Can make complex systems more accessible, e.g. creating an experience about a global problem for a small and local group.
3. Enjoyable, immersive, creative and social.
4. Generate new insights into problems, for example for decision makers.



## Challenges and limitations

1. **Lack of knowledge transfer:** An obvious risk is that they are experienced as 'just games' so direct knowledge transfer from the game to real-life is rare.
2. **Difficult to design:** Developing good, deep, and entertaining games is no easy task and requires the professional input of game designers.
3. **Assume simplification is possible:** The assumption that highly complex topics can be presented to players in an easily understandable manner is not always the case.

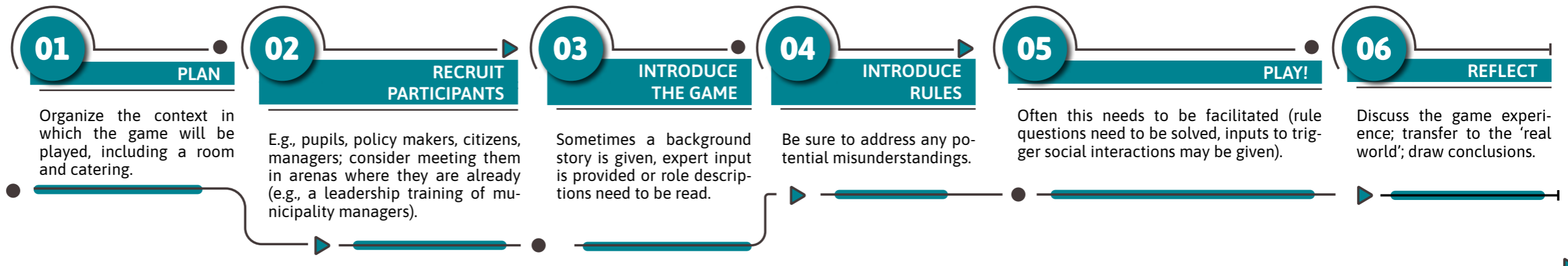


## Participants

Serious Games can be applied to any target group that can understand the game rules. Often, they are played with children, adolescents, and young adults following the assumption that younger people respond better to play and game elements. This target group is not exclusive, as older people can also be engaged with Serious Games. A certain game literacy of the target group often makes the introduction of the games easier, and some Serious Games have a non-trivial language component or highly advanced rules. Most Serious Games target between 3 and 10 players, but there are exceptions of games that can be played alone or in larger groups.

## STEPS

The implementation of serious games is as diverse as the games that are available. A typical implementation could look like this:



**Timeframe:** Playing a sophisticated Serious Game (often including an introduction session beforehand and a wrap-up session afterwards) generally takes a couple of hours for the participants, plus the time required for planning the sessions and recruiting participants. There are some Serious Games, however, that run for days or even weeks (played over several sessions).



## OUTCOMES AND IMPACT

Serious Game sessions often lead to a better understanding of complex mechanisms or dilemmas. Gaming contexts allow for trying out extreme and radical solutions without risks connected to the real world. Furthermore, the social context of the experience allows for collective solution development, and the agency of the player allows them to feel the impact of their own actions on the game world.



## RESOURCES NEEDED

The resources required to develop a new Serious Game should not be underestimated. Designing a good and entertaining, yet at the same time educational and accurate game experience is not trivial. However, many already exist and can be adapted for alternative themes. The required equipment depends on the game and may include computer hardware / software (some games require a rather complicated network setup). Other games just require the materials that come with them. Usually - but not always - a room is needed to play the game in and catering is recommended to create a relaxed atmosphere.

## ONLINE/OFFLINE



Both online, offline, and hybrid versions of Serious Games exist. Game implementation needs to be carefully tailored to the target group and the issue that is being explored.

## LEARN MORE

Fjællingsdal, K.S., and Klöckner, C.A., 2019. *Gaming green: the educational potential of eco—a digital simulated ecosystem*. *Frontiers in Psychology*, 10, p.2846.

Fjællingsdal, K.S., and Klöckner, C.A., 2020. *Green across the board: Board games as tools for dialogue and simplified environmental communication*. *Simulation & Gaming*, 51(5), pp.632-652.

Pflanzl, N., Classe, T., Araujo, R. and Vossen, G., 2017. *Designing serious games for citizen engagement in public service processes*. In *BPM 2016 International Workshops, Rio de Janeiro, Brazil, September 19, 2016, Revised Papers 14* (pp. 180-191). Springer International Publishing.

## REAL LIFE EXAMPLE: ECO

*Eco* is a best practice example of a sophisticated and positively received online Serious Game about the environment. Some environmental games (e.g. *Fate of the World*) address climate issues holistically, whereas *Eco* focuses on more specific environmental topics such as biodiversity.

