CS449/649:
Human-Computer Interaction
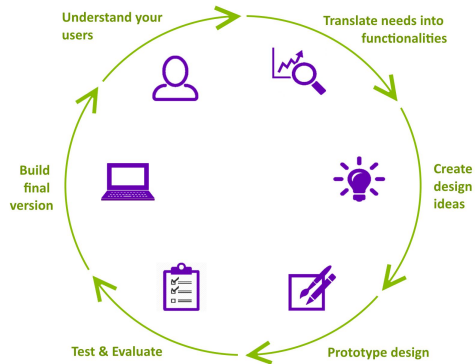
Winter 2018

Lecture XX

Anastasia Kuzminykh

User Centered Design Process
January 4 - March 1

Understand your users

Translate needs into functionalities

Create design ideas

Build final version

Test & Evaluate

Prototype design

History of user centered design in HCI
March 6, March 8

Academic HCI
March 13, March 15

Special topics in HCI
March 20, March 22

Course Review
March 27

Presentation 2
March 29

Last class
April 3

Special topics

Gamification

Accessibility in HCI

Gamification

Gamification - the use of game mechanics and game dynamics in a non-game context

Term coined by Nick Pelling in 2002. Gained popularity around 2010

Used in design to increase motivation and engagement

Gamification

Game mechanics

- Gamespace
- Player representation
- Rules
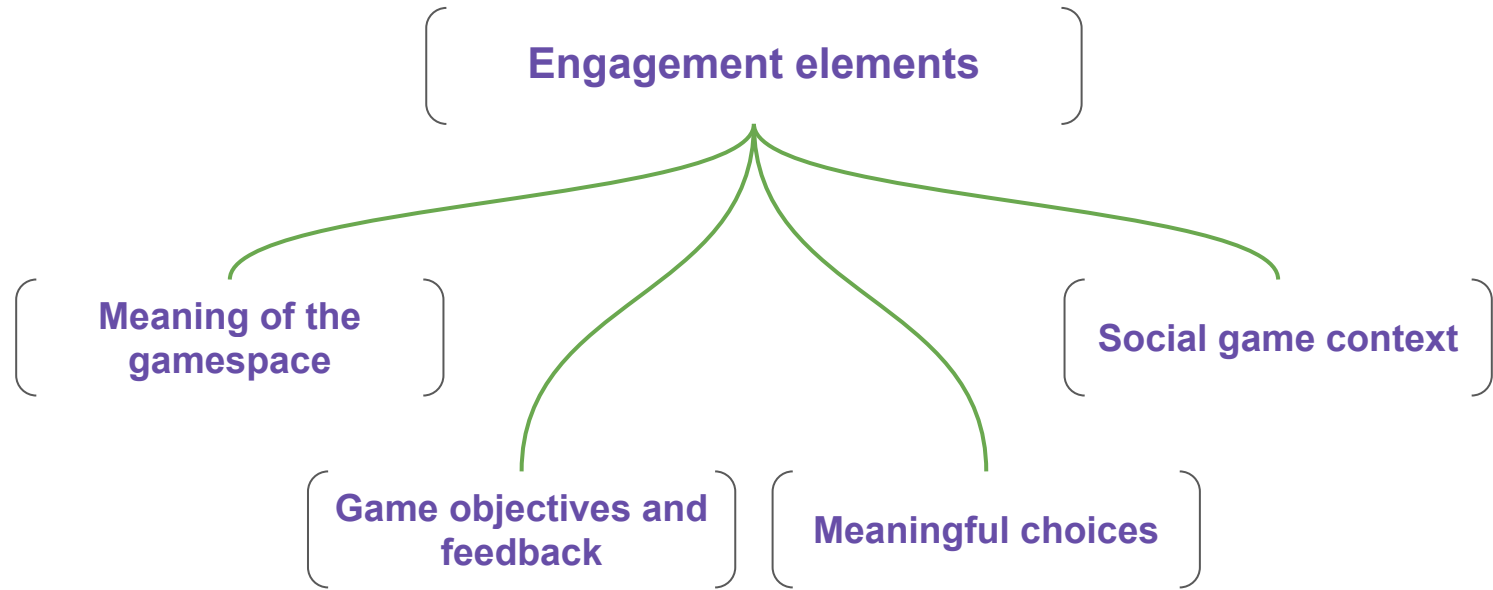- Competition
- Collaboration
- Element of chance
- Feedback system
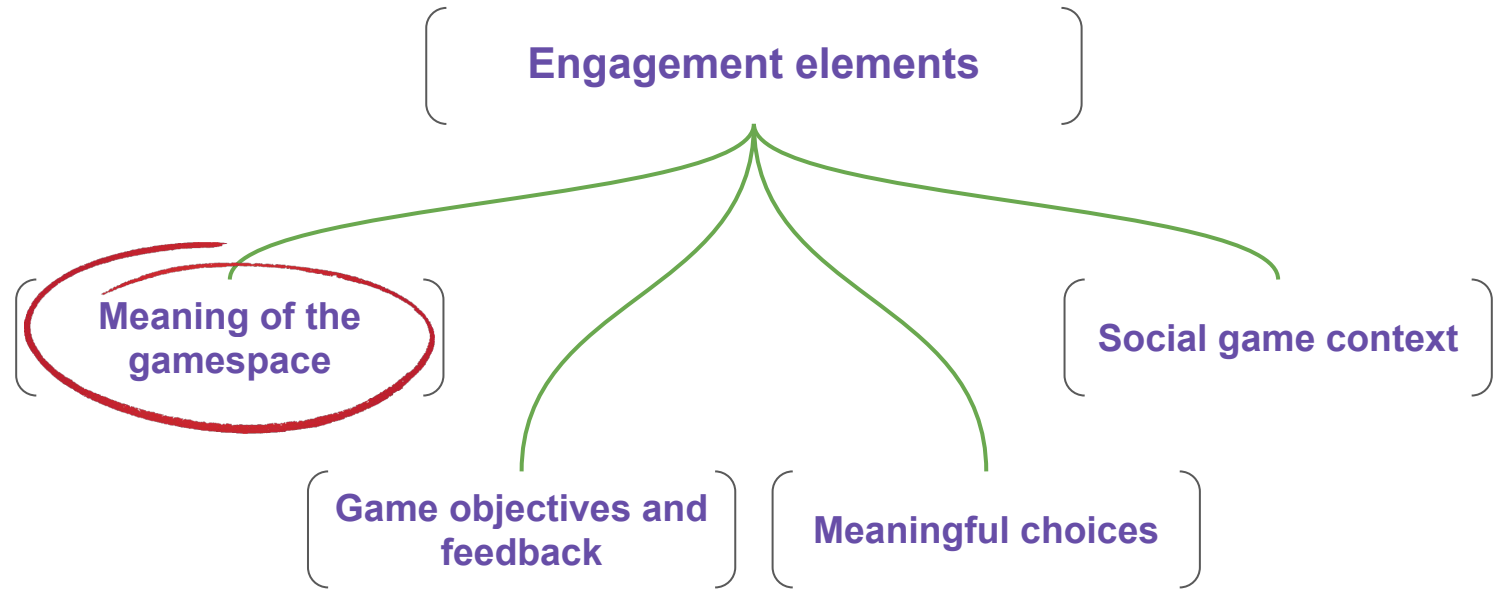- Evidence of accomplishments
- Goals and challenges
- Transparency

Gamification

Engagement elements

Meaning of the gamespace

Game objectives and feedback

Meaningful choices

Social game context

Gamification

Engagement elements

Meaning of the gamespace

Game objectives and feedback

Meaningful choices

Social game context

Gamification

Meaning of the gamespace

Game o~~~~
fe~~~~

- **Often achieved by storytelling practices**
- **Should be heavily supported by visual elements**
- **Gamified goals should connect to personal goals**
- **Connecting to a meaningful community of interest is helpful**
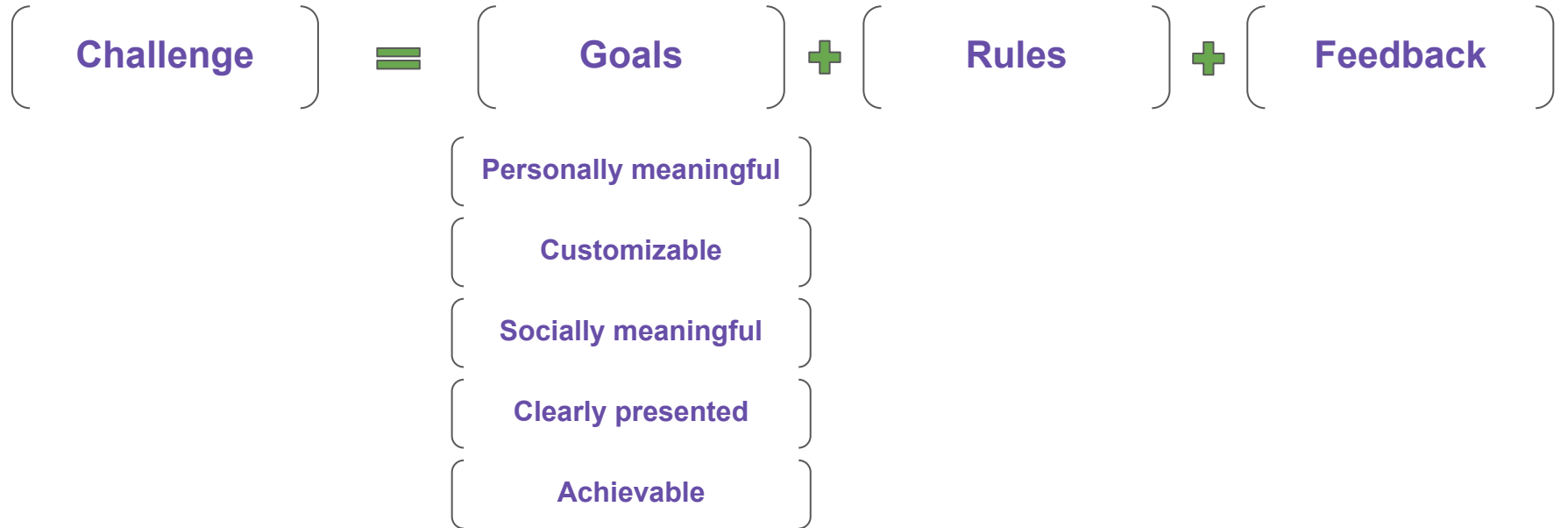- **Building upon social meaning within the created story and outside of it**

Gamification

Engagement elements

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Game objectives and feedback

Meaningful choices
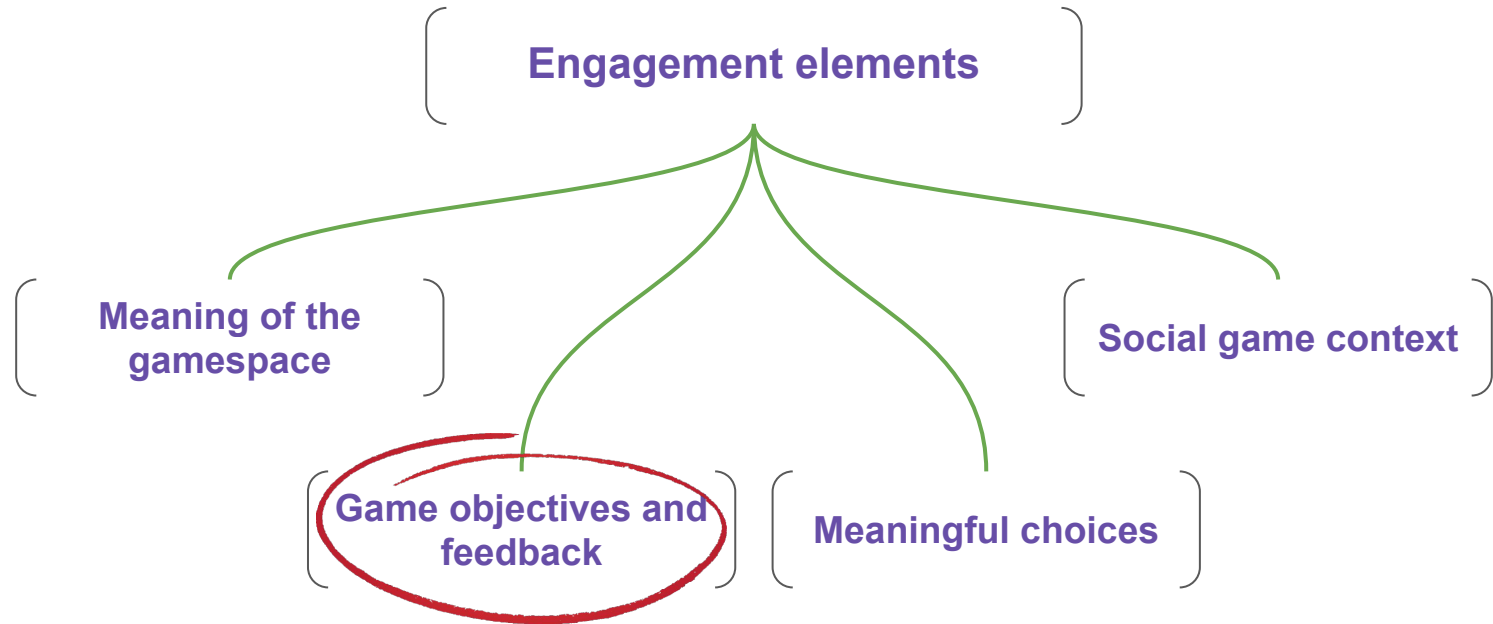
Gamification

$$\left(\text{Challenge} \right) = \left(\text{Goals} \right) + \left(\text{Rules} \right) + \left(\text{Feedback} \right)$$
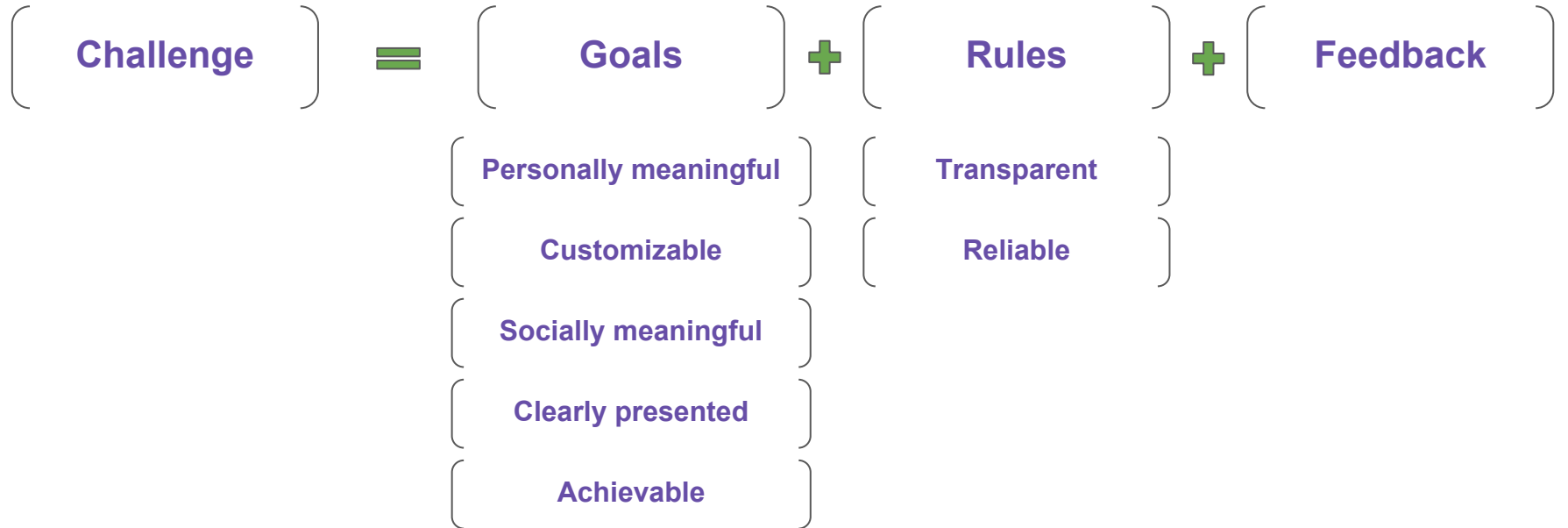
Gamification

Challenge = Goals + Rules + Feedback

Personally meaningful

Customizable

Socially meaningful

Clearly presented

Achievable

Gamification

Challenge = **Goals** + **Rules** + **Feedback**

Goals:
- Personally meaningful
- Customizable
- Socially meaningful
- Clearly presented
- Achievable

Rules:
- Transparent
- Reliable

Gamification

Challenge = **Goals** + **Rules** + **Feedback**

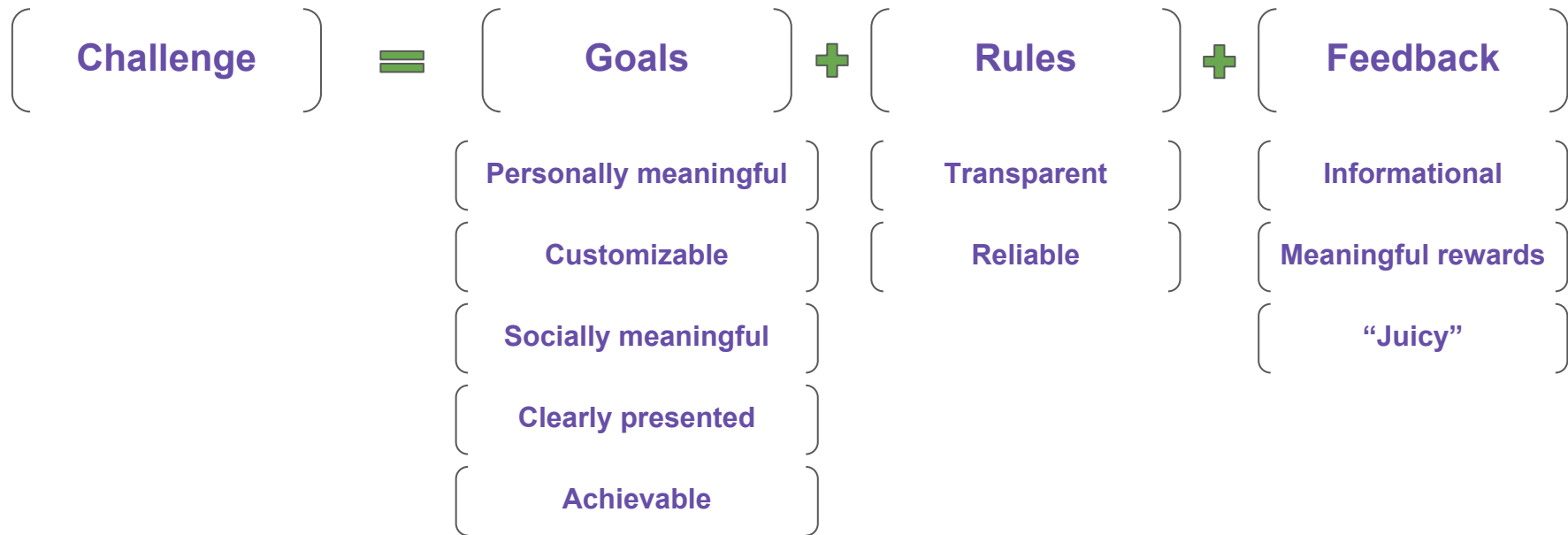| Goals	Rules	Feedback
Personally meaningful	Transparent	Informational
Customizable	Reliable	Meaningful rewards
Socially meaningful		"Juicy"
Clearly presented		
Achievable		

Gamification

- **Interesting and meaningful challenges**
- **Clear goals, organized by increasing difficulty**
- **Match the edge of user abilities**
- **Make rewards meaningful internally and externally**
- **Feedback should be informational**
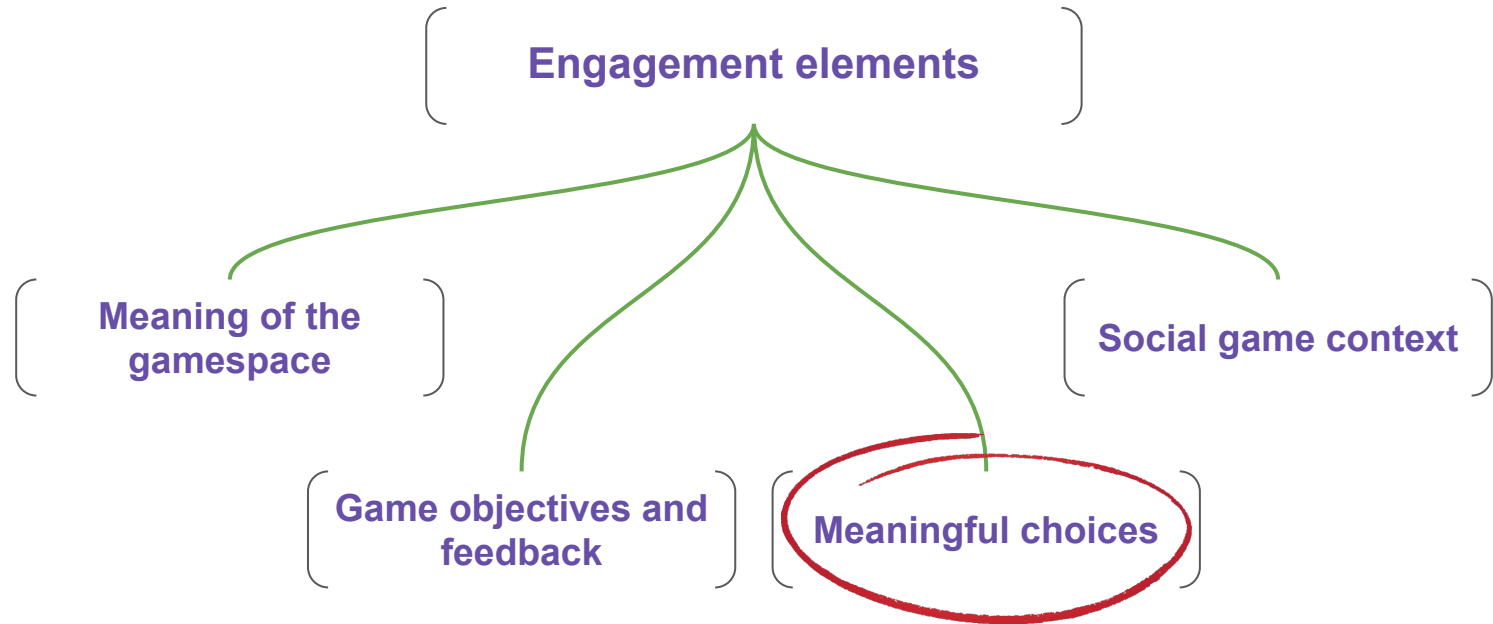- **Feedback in more effective when hitting emotional level**

ame context

Game objectives and feedback

Meaningful choices

Gamification

Engagement elements

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Game objectives and feedback

Meaningful choices

Gamification

- **Support voluntarism and autonomy**
- **Make choices feel meaningful and impactful**
- **Support multiple ways of problem solving**
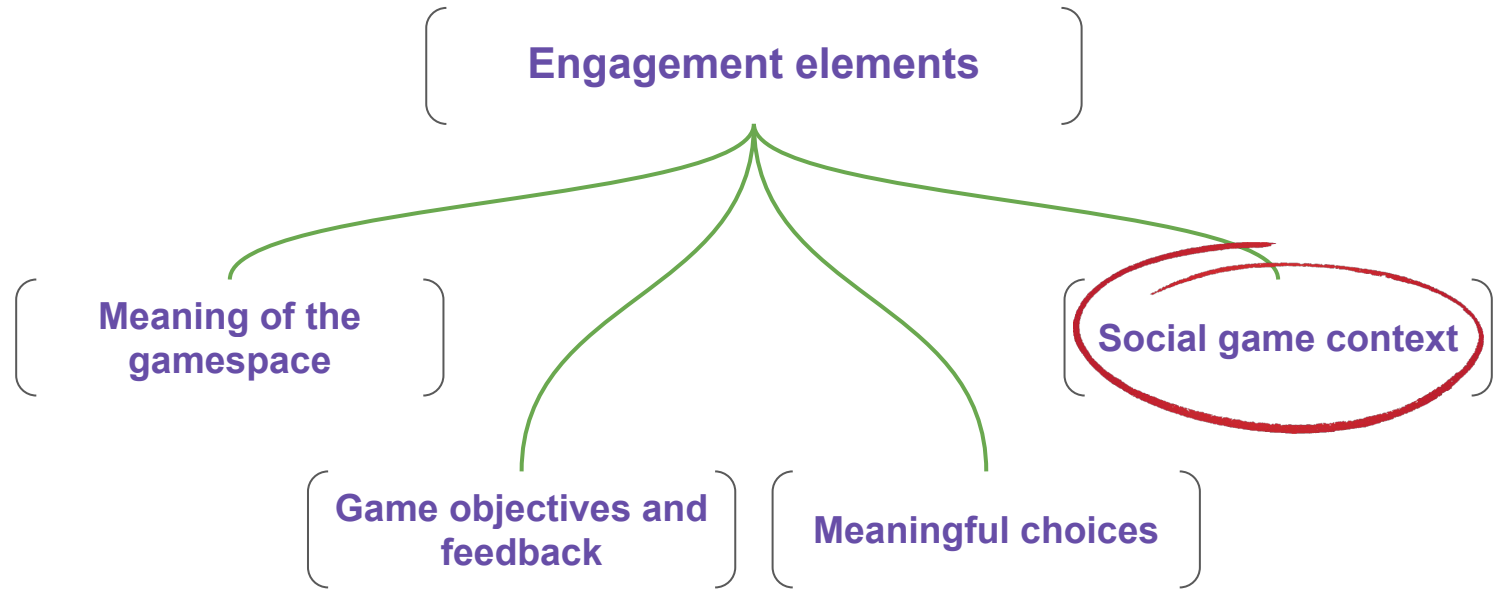- **Lead users in the right direction but don't force them**

Meaning of the gamespace

Game objectives and feedback

Meaningful choices

Gamification

The Robbers Cave Experiment by Muzafer Sherif

Realistic conflict theory - situation when two or more groups that are seeking the same limited resources leads to conflicts, negative stereotypes and discrimination between groups.

In-group–out-group bias - pattern of favoring members of one's in-group over out-group members
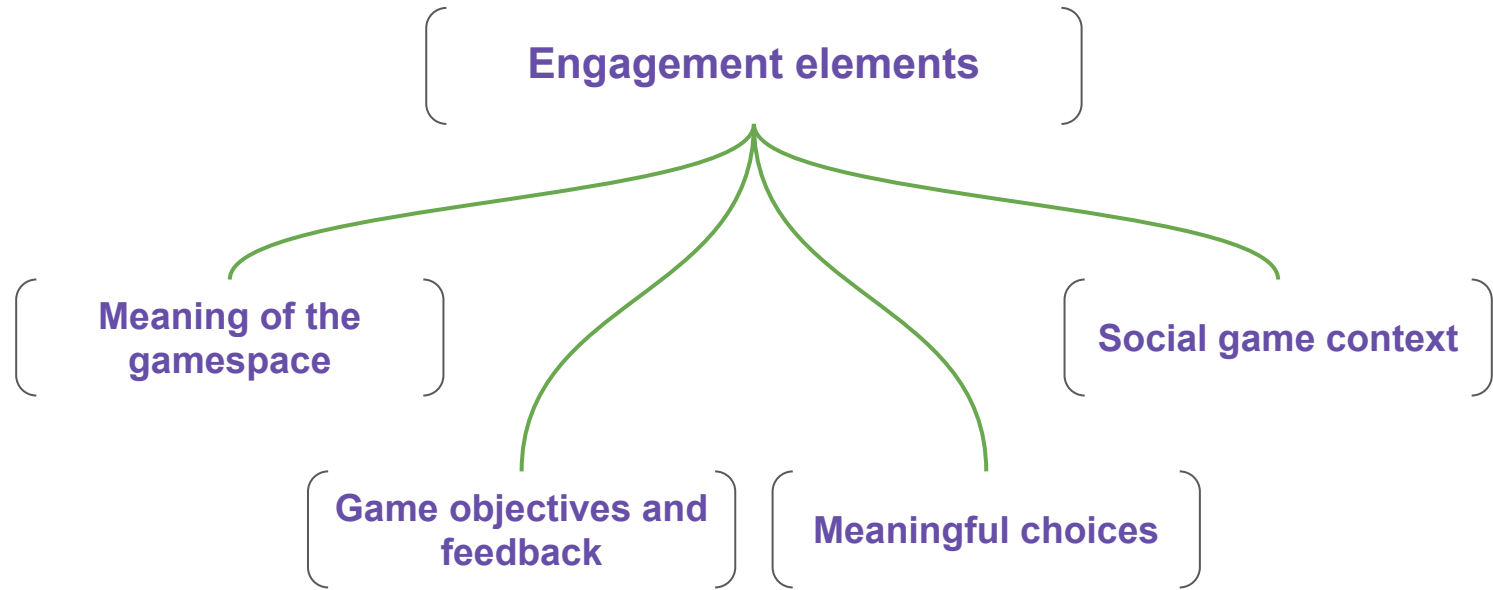
Gamification

- **Connect to meaningful communities**
- **Allow users to group and regroup**
- **Support community internal activities**
- **Support setting shared goals**
- **Support status and reputation representations**
- **Support players representation customization**
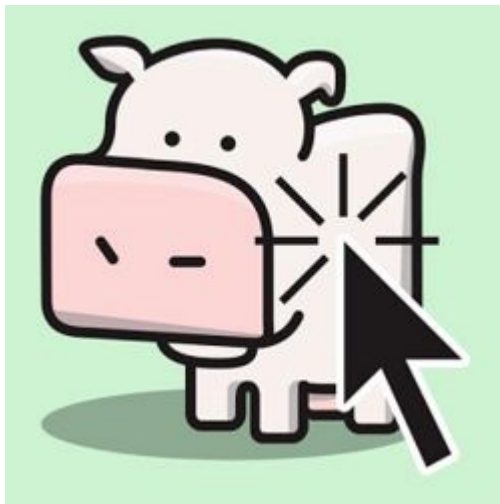
Social game context

hoices

Gamification

Cow Clicker by <u>Ian Bogost</u>

Gamification

Self-Determination theory

Intrinsic motivation

Extrinsic motivation

Gamification

Self-Determination theory

Intrinsic motivation

Extrinsic motivation

Feeling capable of doing something

Possibility of achievement

Feeling free to choose how to do something

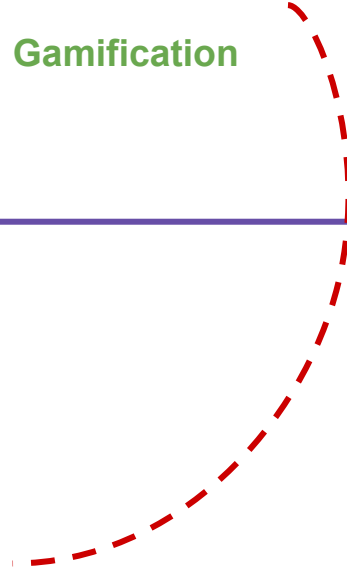**Fulfilling an obligation**
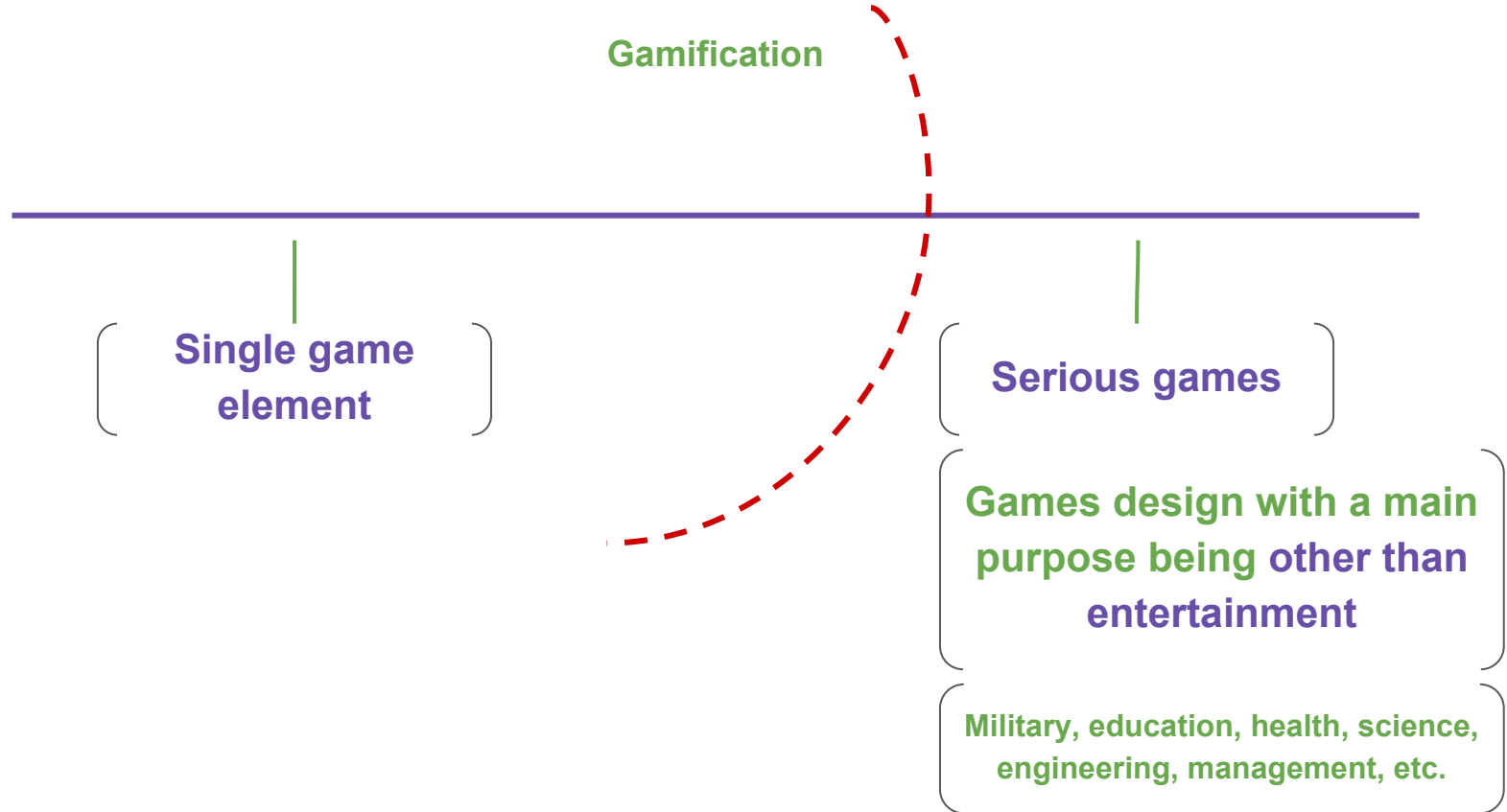
Feeling connected to other people

Gamification

Single game
element

Serious games

Gamification

Single game element

Serious games

Games design with a main purpose being other than entertainment

Military, education, health, science, engineering, management, etc.

Gamification

**Games Research in HCI -
'Player-Computer Interaction' (PCI)**

area concerned with studying games, gaming and play

Paradigms of games research in HCI:

Operative - knowledge gained from the study of games or play to exert control upon the world, such as encouraging exercise or learning

Epistemological - uses games as a vehicle for understanding the use of all technologies, such as virtual embodiment or interfaces

Ontological - the design and understanding of the ontology of games: rules, aesthetic, interfaces, fiction and game design patterns

Practice - the emergent practices and experiences that occur as a result of interaction with games, or interaction with technology with a lusory attitude

Carter, Marcus, et al. **"Paradigms of games research in HCI: a review of 10 years of research at CHI."** *Proceedings of the first ACM SIGCHI annual symposium on Computer-human interaction in play*. ACM, 2014.