

**What Makes Things Fun to Learn?  
Heuristics for Designing Instructional Computer Games**

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Mitt navn er  
Gard Steinsvik

CHALLENGE

FANTASY

CURIOSITY

# CHALLENGE

# FANTASY

# CURIOSITY

- Goal
  - Obvious to the player
  - Connection to fantasy, not the skill itself
  - Feedback as you progress
- Uncertain outcome
  - Variable difficulty
    - Automatic or chosen
  - Multiple-level goals
    - Reaching primary goal efficiently
  - Hidden information
    - Curiosity
  - Randomness
    - Unique experience
- Self-esteem
  - Appropriate challenge level or randomness
  - Encourage, don't punish
  - Low self-esteem = no desire to play

# CHALLENGE

# FANTASY

# CURIOSITY



$$2 + 2 = \underline{\quad}$$

Utføre oppgave



$$2 + 2 = \underline{\quad}$$



Tydlig mål

# CHALLENGE

# FANTASY

# CURIOSITY



Variierende vanskelighetsgrad



Mål på flere nivåer



Bortgjemt informasjon

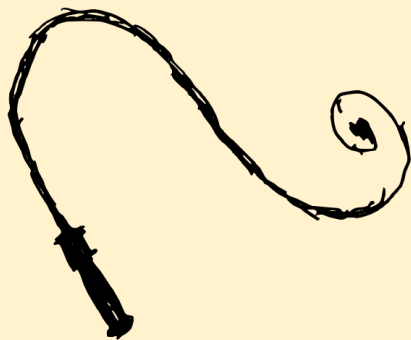


Tilfeldighet

CHALLENGE

FANTASY

CURIOSITY



Spillerens selvfølelse  
er viktig!

# CHALLENGE

# FANTASY

# CURIOSITY

- Extrinsic fantasy
  - Interchangeable goal not tied to domain or task
  - Motivational
  - Constructing a building, hangman, time bomb ticking
- Emotional aspects
  - Same task, but different fantasies for different demographics
- Intrinsic fantasy (iboende fantasi)
  - Use of skill depends on the fantasy
  - Analogies between the fantasy and the problem
  - Allows for creativity to learn a skill

CHALLENGE

FANTASY

CURIOSITY

Utenforliggende fantasi

Iboende fantasi



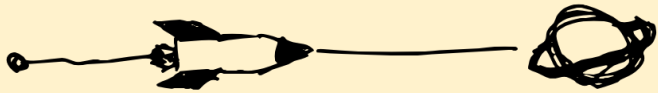
CHALLENGE

FANTASY

CURIOSITY

Utenforliggende fantasi

$$2 + 2 = \underline{\quad}$$



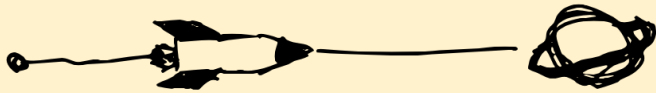
CHALLENGE

FANTASY

CURIOSITY

Utenforliggende fantasi

$$2 + 2 = \underline{\quad}$$



$$2 + 2 = \underline{\quad}$$



CHALLENGE

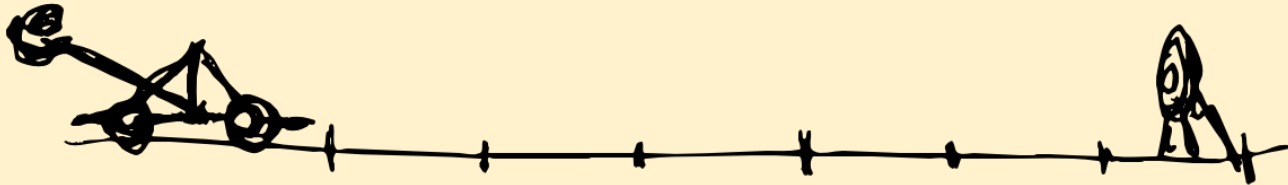
FANTASY

CURIOSITY

Iboende fantasi

$$43 \times 17 = \underline{\hspace{2cm}}$$

$$43 \times 17 = 731$$



CHALLENGE

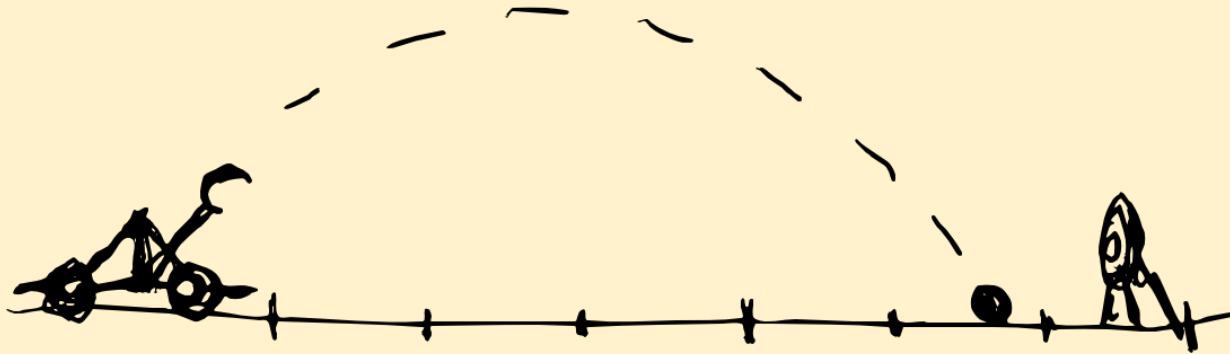
FANTASY

CURIOSITY

Iboende fantasi

$$43 \times 17 = \underline{\underline{700}}$$

$$43 \times 17 = 731$$



CHALLENGE

FANTASY

CURIOSITY

Microsoft *Flight Simulator*



# CHALLENGE

# FANTASY

# CURIOSITY

- Sensory curiosity
  - Sensory stimuli
  - Audio and visual effects
    - Decoration
    - Enhance fantasy
    - Reward
    - Representation
- Cognitive curiosity
  - Provide just enough information so that existing knowledge seems incomplete, inconsistent and impersonal
    - Motivates to complete the cognitive structures

CHALLENGE

FANTASY

CURIOSITY

Sensorisk nysgjerrighet

Kognitiv nysgjerrighet

CHALLENGE

FANTASY

CURIOSITY



*Sensorisk  
nysgjerrighet*



Incorrect



Answer Streak Lost



Answer Streak **03**

+200 Bonus points

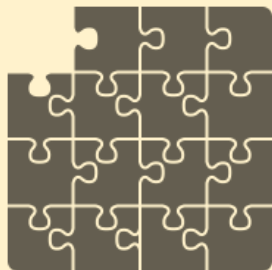
**+750**



CHALLENGE

FANTASY

CURIOSITY

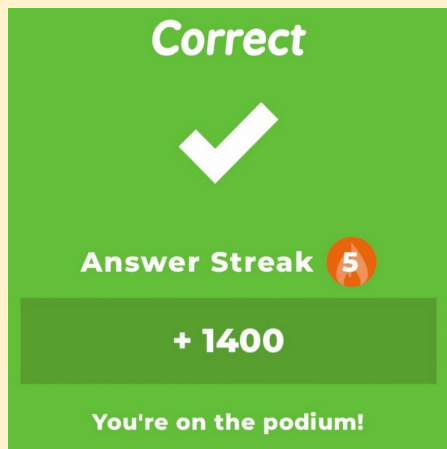


Kognitiv  
nysgjerrighet

CHALLENGE

FANTASY

CURIOSITY



Correct

✓

Answer Streak 5

+ 1400

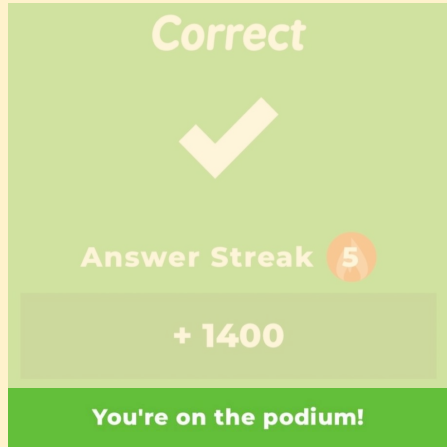
You're on the podium!

Kognitiv  
nysgjerrighet

CHALLENGE

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Kognitiv  
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