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

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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
Tydelig mål

Utføre oppgave

2 + 2 = _

2 + 2 = _
Varierende vanskelighetsgrad

Mål på flere nivåer

Bortgjemet informasjon

Tilfeldighet
Spillerens selvfølelse er viktig!
● 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
Utenforliggende fantasi

Iboende fantasi
Utenforliggende fantasi

2 + 2 = ___
Utenforliggende fantasi

\[ 2 + 2 = - \]

\[ 2 + 2 = - \]
Iboende fantasi

43 \times 17 = ___

\[ 43 \times 17 = 731 \]
Iboende fantasi

$43 \times 17 = 700$
● 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
Sensorisk nysgjerrighet

Kognitiv nysgjerrighet
Sensorisk nysgjerrighet
CHALLENGE  FANTASY  CURIOSITY

Correct
Answer Streak 🟢 5
+ 1400
You're on the podium!

Kognitiv nysgjerrighet
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