

Games and Learning Styles

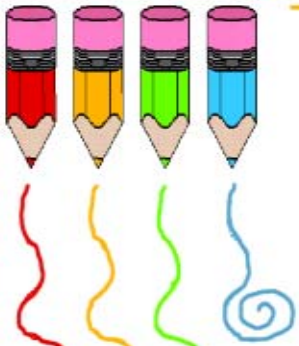


KATRIN BECKER
UNIVERSITY OF CALGARY



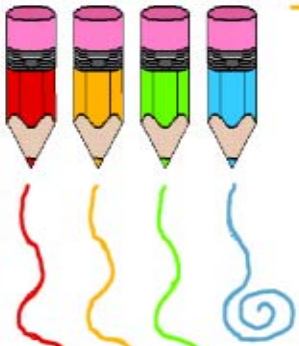
Overview

- Why Learning Styles
- What Learning Styles
- Why Games
- Learning Styles Summary, with game examples



Ultimate Goals

- See games as media
 - (books, tv, film, ...)
 - View games critically
- Examine games as potential learning objects
 - How people learn **in** games
 - What people learn **from** games
- Consider game technology as a tool
 - Can we/ how can we use games as instructional technologies?



Today's Goal

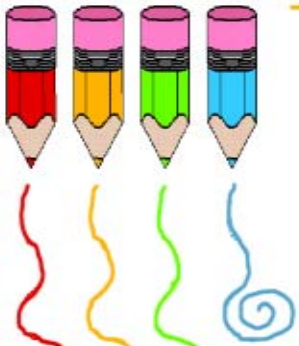
Show that
games already address a wide range of
learning styles, by almost anyone's
measure.



Learning Theory vs. Learning Style

Complimentary, not Contentious

- Theory – describes how learning happens (behaviourist, constructivist, situated, social,...)
- Style – describes different 'kinds' of learners (MI?, Kiersey, temperaments & preferences: spatial, verbal, auditory, kinesthetic...)



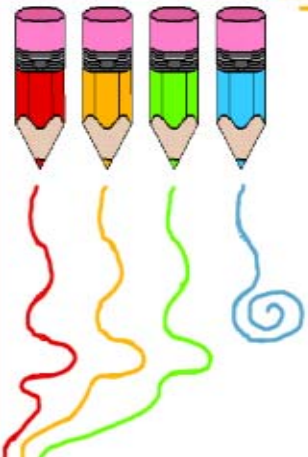
So What?

- Styles affect:
 - How we learn
 - How we engage with material
 - Which presentation formats suit us (attract us and help hold our attention)



Matching Instructional Approaches to Learning Styles

- Matching styles helps us learn more effectively & efficiently
- Acknowledging strengths and weaknesses helps people feel valued.
- Encouraging practice in other styles helps build strength in those too.



Games *already* match multiple styles

- Offer auditory, textual & visual feedback
- Many genres
- Short & long games
- Simple & intense
- Cooperative & competitive



Four Learning Styles

- Keirsey (Myers-Briggs)
- Kolb's Learning Styles
- Gregorc System of Learning
- ILS (Index of Learning Styles)



Four Preferences (Myers-Briggs)

E = Expressive (extrovert)

I = Reserved (introvert)

S = Observant (sensation)

N = Introspective (intuition)

T = Tough-Minded (thinking)

F = Friendly (feeling)

J = Scheduling (judgment)

P = Probing (perception)



Keirsey (based on Myers-Briggs)

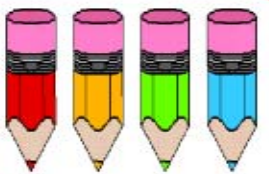
Artisans value freedom and spontaneity. They tend to be impulsive, playful and creative.

Guardians value belonging to a group or community. They tend to be traditional, responsible and conservative.

Idealists value personal growth, authenticity, and integrity. They tend to try and encourage these traits in others. This group includes people they define as “teachers”.

Rationals value competence and intelligence. They strive for knowledge, predictability, and control.

These already sound kind of like.....



Keirsey & (Game) Races?

Idealists



Neverwinter Nights



Guardians

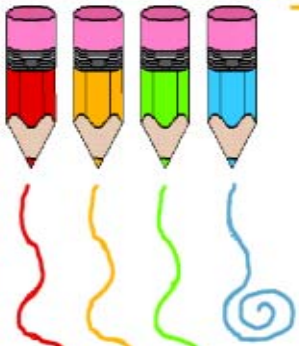


Artisans

(C) Becker 2005



Rationals



Kolb's Learning Style

Abstract Conceptualization (AC)

creating theories to explain observations

Active Experimentation (AE)

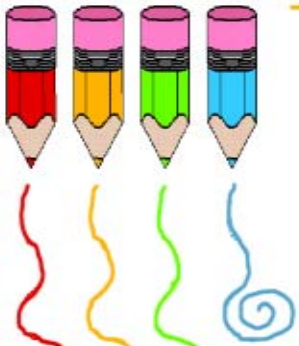
using theories to solve problems, make decisions

Concrete Experience (CX)

being involved in a new experience

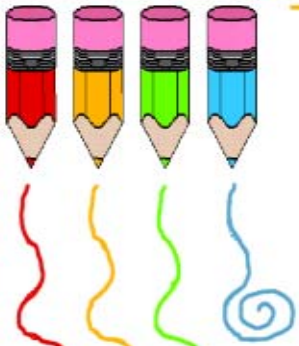
Reflective Observation (RO)

watch others / develop observations about own experience



Kolb's Characteristic Description

- Converger:** Abstract Conceptualization (AC) + Active Experimentation (AE)
- Diverger:** Concrete Experience (CX) + Reflective Observation (RO)
- Assimilator:** Abstract Conceptualization (AC) + Reflective Observation (RO)
- Accommodator:** Concrete Experience (CX) + Active Experimentation (AE)



Kolb's Learning Style & Characteristic Description

Converger:

- Practical application of ideas
- Focus on hypo-deductive reasoning on specific problems
- Unemotional
- Narrow interests

Diverger:

- Imaginative ability
- Generates ideas and sees things from different perspectives
- Interested in people
- Broad cultural interests

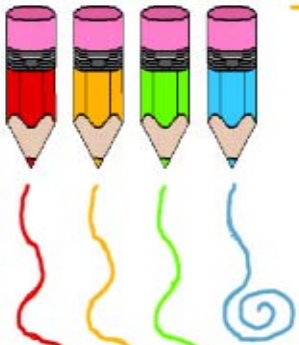
Assimilator:

- Can create theoretical models
- Excels in inductive reasoning
- Abstract concepts rather than people.

Accommodator:

- Doing
- Risk taker
- Can react to immediate circumstances
- Solves problems intuitively

And..



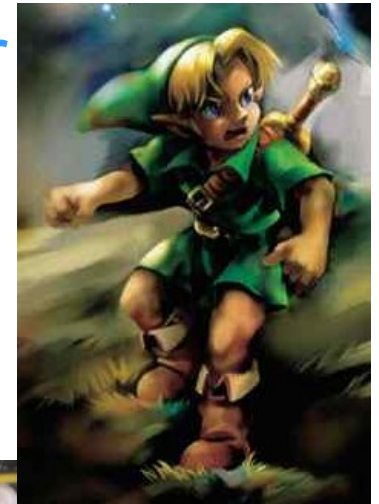
Kolb's Learning Style & Games

Converger

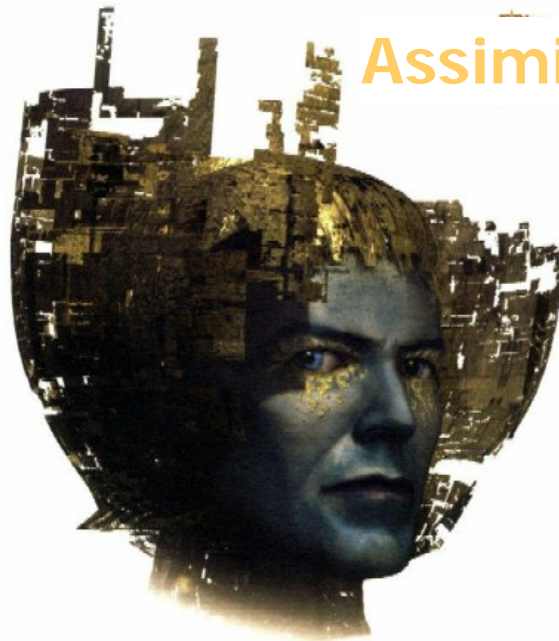


6-Jul-05

Accommodator



Assimilator



Diverger



(C) Becker 2005



Gregorc System of Learning

[l-brain/r-brain]

Concrete-Sequential

- Linear and sequential.

Concrete-Random

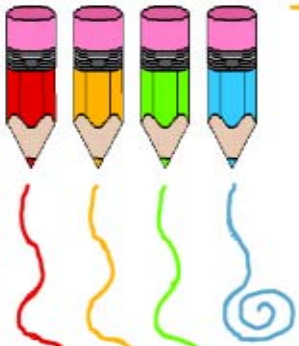
- Concrete and intuitive
- Thrives on problem- solving.

Abstract-Sequential

- Abstract and analytical
- Thrives on a mentally challenging but ordered learning environment.

Abstract-Random

- Emotional and imaginative,
- Prefers an active, interesting, and informal learning environment.



Gregorc, & Games

How games embody this system:

Concrete

- Feedback & in-game status information

Abstract

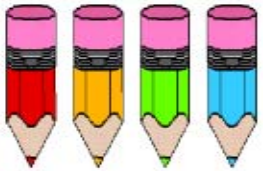
- Can act on “what-if”

Sequential

- Levels, skills, experience

Random

- Permit random actions / reactions **, emergent behaviours

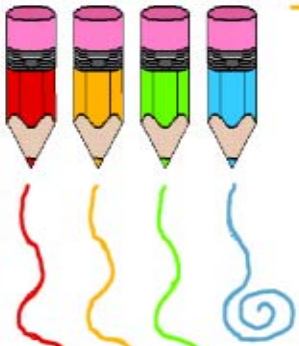


Gregorc Games



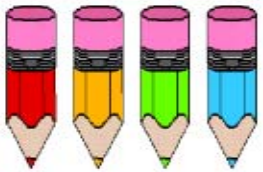
Abstract-Random:
Katamari Damacy

(C) Becker 2005



ILS (Index of Learning Styles)

- Active vs. Reflective
 - doing vs. thinking
- Sensing vs. Inuitive
 - Facts, processes vs. concepts, relationships
- Visual vs. Verbal
 - Seeing, picturing vs. hearing, reading, saying
- Sequential vs. Global
 - Step-wise vs. leaps, random



ILS Games

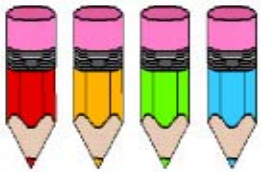
- Active vs. Reflective
 - doing vs. thinking



Medal of Honor



Black and White

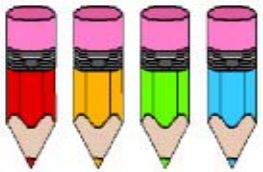


ILS Games

- Sensing vs. Intuitive

– Facts, processes vs. concepts, relationships





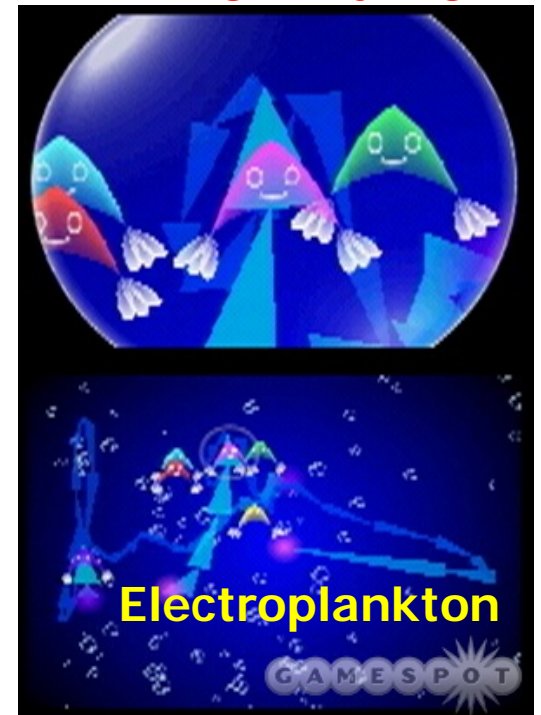
ILS Games

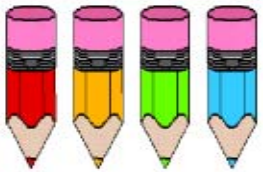
- Visual vs. Verbal

- Seeing, picturing vs. hearing, reading, saying



Super Mario Kart





ILS Games

- Sequential vs. Global

- Step-wise vs. leaps, random



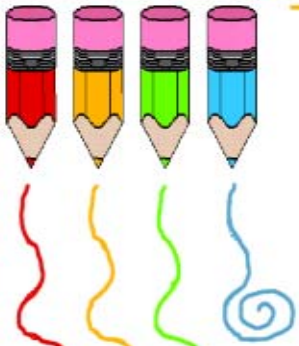
Roller Coaster Tycoon

6-Jul-05



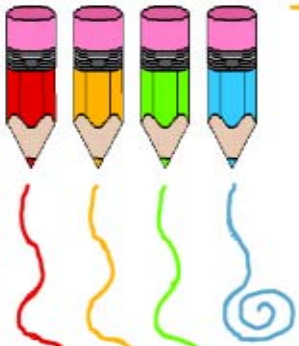
Psychonauts

(C) Becker 2005



Where Does That Leave Us?

- Many games seem to already address specific, or multiple learning styles.
- True, no single game or genre is likely to suit everyone
 - also true of virtually all other instructional technologies & interventions.
- Games constitute a rich medium.



Parting Shots...

- Is there a balance in games today?
- Are games preferentially “training” to certain styles?
- Are certain types/genres of games preferred by certain styles of learners?
- Do gamers have similar styles?
- How might we leverage this for education?



Thanks! And Credits:

Games

Metroid Prime
Knox
Neverwinter Nights
Legend of Zelda
Halo 2
Shenmue
Nomad Soul
Super Monkeyball
Medal of Honor
Civilization III

Syberia II
Katamari Damacy
Myst III Exile
Pikmin II
Roller Coaster Tycoon III
Black and White
Electroplankton
Psychonauts
Super Mario Kart

Images:

GameSpot.com
MobyGames.com
GameWallpaper.com
Fan Art
(game sites)

PowerPoint:

Slide
Concept & the
pencils:

Nan Shastry, 2004