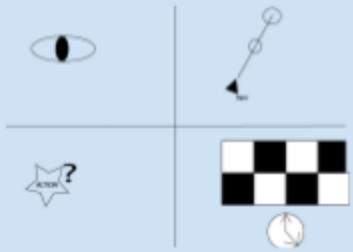
Simulation Elements

Definition: Capture and model some part of reality, and the role of someone in it.

Example: This situational element represented how building playgrounds affect children, the town, and even businesses.



Four Major Knowledge Constructs

Definition: Situational awareness, dead reckoning, understanding of actions, and awareness of patterns over time

Example: I was able to beat the game using the four major knowledge constructs

Contextual Actions

Definition: Actions available based on context (such as where on the map you are, how much money you have, or what items you have equipped)

Example: Marcus knew the city he was trying to get to was North, so one of the contextual actions available to him was to head in that direction.

Cyclical Actions

Definition: The same finite set of actions available throughout an experience, typically having two analog components - time and magnitude.

Example: The cyclical actions that were involved in running were too boring for Billy. He needed something to spice up his morning jog.

Traditional Sim Actions

Definition: Move, use, pick up tools, select, switch lenses, automation, and whiff.

Example: The simulator performed the traditional sim action of picking up tools for me.

Linear Content

Definition: Linear content is biased towards action. Doing nothing might be a good option at times.

Example: I knew something bad would happen if I chose to act, so I decided not to. I realized the game had linear content.

Middle Skills

Definition: The layer between actions and big skills.

Example: Madison knew the second city had better trade routes, so she prioritized capturing that one instead of the first.

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What are the properties of middle skills?

Example: Middle skills require finesse and calibration

They are easy to describe (that is, simply raising awareness of them is easy) but challenging to apply appropriately

They often require indirect influence of the on-screen units, something that works well for simulations

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Types of Middle Skills

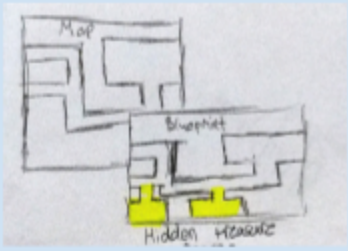
- Alignment of strategies and tactics
- Analysis
- Bubble word calibration (a small world as opposed to the entire world's system)
- Changing level of alignment
- Conflict
- Containment
- Creation and Implementation of New Actions or Processes

Types of Middle Skills

- Deception
- Estimating Benefits
- Estimating Costs
- Expulsion
- Extraction
- Fit
- Gathering Evidence
- Long-Term Planning
- Maintenance
- Introducing New Processes
- Calibrating Ownership
- Prioritizing

Types of Middle Skills

- Probing
- Procurement
- Research
- Scheduling
- Sourcing, Contracting, and Outsourcing
- (Finding the Skills for New Projects???)
- Churning
- Kick-the-Can
- Microcalibrating
- Naïve Commanding



Probing

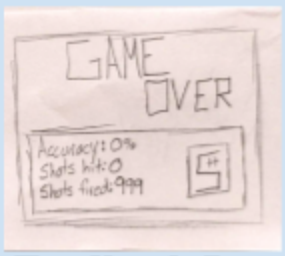
Definition: The middle skill of using resources to try revealing obstructed spots of a physical or conceptual map, often trying to find locations of high value.

Example: Jill asked questions, probing her enemy's mind, trying to find a weakness.

Systems

Definition: The ways which an abstract operation actually operates.

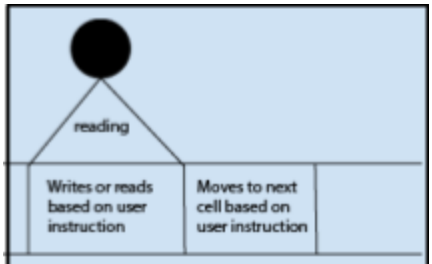
Example: The systems involving city-planning include business, citizen approval, tourism, engineering, transportation, and many others.



Feedback Loop

Definition: Periods of feedback to the participants that reveal information to describe how they are performing.

Example: Every five turns, there was a feedback. People took notes on its results so they could perform better next time.



Turing Machine

Definition: A mathematical model of a hypothetical computing machine that can use a predefined set of rules to determine a result from a set of input values.

Example: Bob built a computer based upon the Turing Machine.

Alan Turing

Definition: The founder of computer science and the originator of modern dominant technology. Conceptualized the Turing Machine model.

Example: Beca felt like a little Alan Turing of her own when she figured out logic patterns.

Situational Awareness

Definition: The ability to filter out certain details and highlight and extrapolate others, to better understand and control the outcome.

Example: Sherlock Holmes is situationally aware of clues to decipher whoever he talks to.

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Why is situational awareness important in serious games?

Example: Serious games can train the mind to pay attention to particular details (increase situational awareness), a task best suited for participatory learning.

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What is important about the Turing Machine?

Example: The Turing Machine has become the foundation of the modern theory of computation and computability. (aka: computer problem-solving and its mechanical process)

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Is probing required in every simulation?

Example: While probing isn't always required, it is used very frequently. Anything related to "testing the waters" is, in a way, probing. Probing is also a powerful teaching tool.

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Virtual Labs

Definition: are educational simulations that allow for practice with real world tools but in a virtual space.

Example: The **Virtual Labs** allowed the designers to assess the project for balancing issues.

Synchronous learning

Definition: Allows participants to learn at the same time, even in different locations

Example: If we all meet over skype then were using Synchronous learning.

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What are the pros and cons of Virtual Labs?

Example: A Pro of Virtual Labs is that they can be used for learning and a con is that they may not be as fun as a "game."

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Asynchronous learning

Definition: Allows participants to learn at different times in different locations.

Example: If you guys use Asychronous learning, like post something in a group chat, I'll figure it out later.

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What are the three learning goals?

Example: I've set out three goals of learning,to help me figure things out and they are learning to be, learning to do, and learning to know.

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What is "learning to be?"

Example: The students' quest to find out who they are. What am I good at? What do I like? How do I naturally interact with others?

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What is "learning to do?"

Example:The students' quest to develop and increase their own capabilities (self-improvement, skill development).

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What is "learning to know?"

Example: The students' quest to see themselves in a bigger context, both across space and across time. (how will what I do now impact people across the world?)

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Program goals

Definition: Any desired traits, abilities, or measurable outcome that will hopefully be improved.

Example: I set **Program Goals** before I start a program to make sure everything is how I want.

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What 3 Things Do Genres Establish?

- It eases use for the participant
- Guides the developers
- Provides an evolution path for the industry

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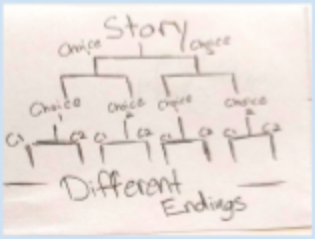
Microcosms

Definition: Real experiences that serve as a case study for a larger, less controllable environment.

Example: They put me in a microcosm to see how I would react.



Branching Story

Definition: An educational simulation genre in which students make decisions through a series of multiple choices to progress through an event that develops in different ways according to the choices each student makes.

Example: Because Sally chose to help out Tim, she could no longer save Earl.

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What are the pros and cons of using branching stories?

Example: The simplicity of the interface is both branching stories' greatest strength and weakness. They are easy to use and deploy, they use discrete decisions, and have dynamic visuals. However, they may be "all trigger and no complex system"

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What are the pros and cons of interactive spreadsheets?

Example: "Interactive spreadsheets require- and provide a pure introduction to- systems. They're wonderful for showing how something works." However, real life situations can never be perfectly modeled by such systems.

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Why is it important to know about genres?

Example: "The genre shapes much of the interface, user interaction, goals, visual style, and other mechanisms. And while genres are never static, they provide an established framework that does three things…"

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Defining Results?

- What does victory look like?
- What is the nature of victory?
- What are the trade-offs in victory?

Example: when you complete a level there is reward at the end with an item

The Mission

Definition: Explicitly defined mission in which failure is not an option.Everything can be sacrificed for the goal

Example: You are looking for a certain brand of bread and you are willing to sacrifice anything to find this bread.

Financial Matters

Definition: Varies from Funding, to Profitability, and Return on investment

Example: You put money into the stock market in hope to get more money back.

Microcalibration

Definition: The pattern of doing something over and over again making only tiny changes, in the hope of significantly different results.

Example:You change how your meal taste by changing one thing either by adding or taking away.