Divergent and Convergent Thinking: Ideas to Implementation

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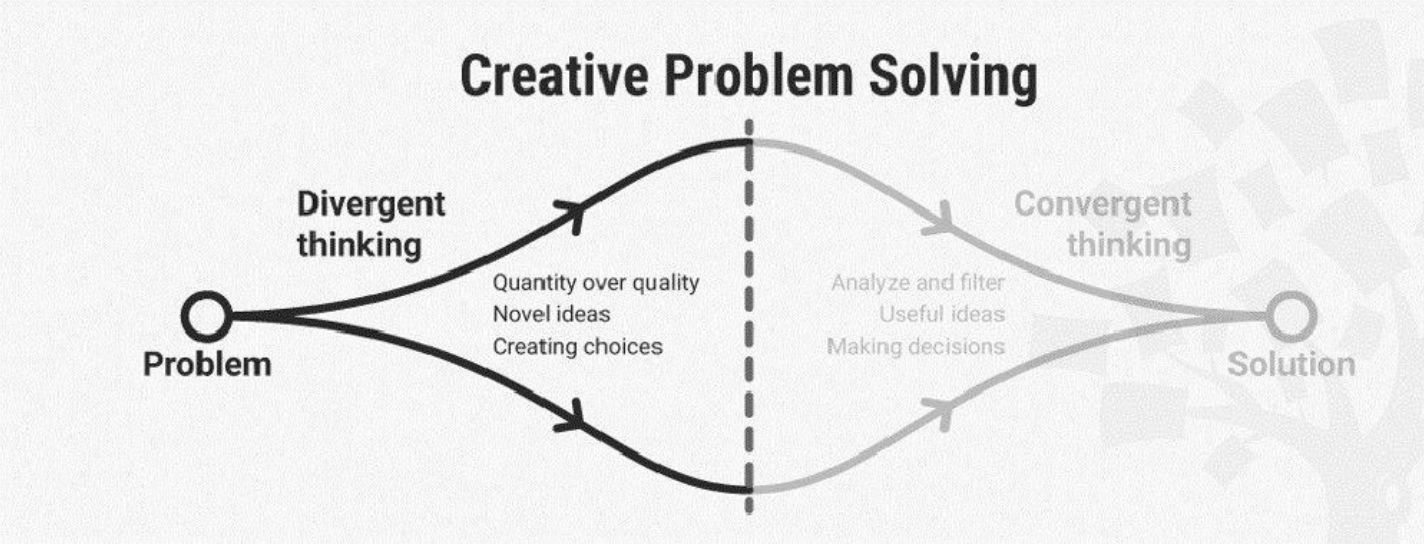
What is divergent and convergent thinking?

- Divergent and convergent thinking is a problem-solving method applicable to almost any field, both creative and technical.

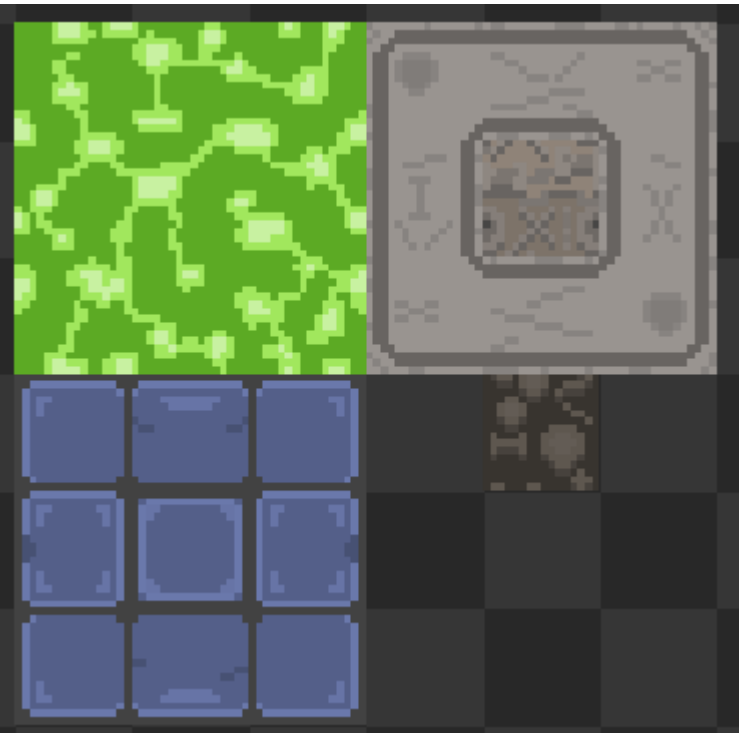
- It is a two-phased thinking method involving first branching out from a starting idea, followed by narrowing that pool of ideas into a concrete plan.

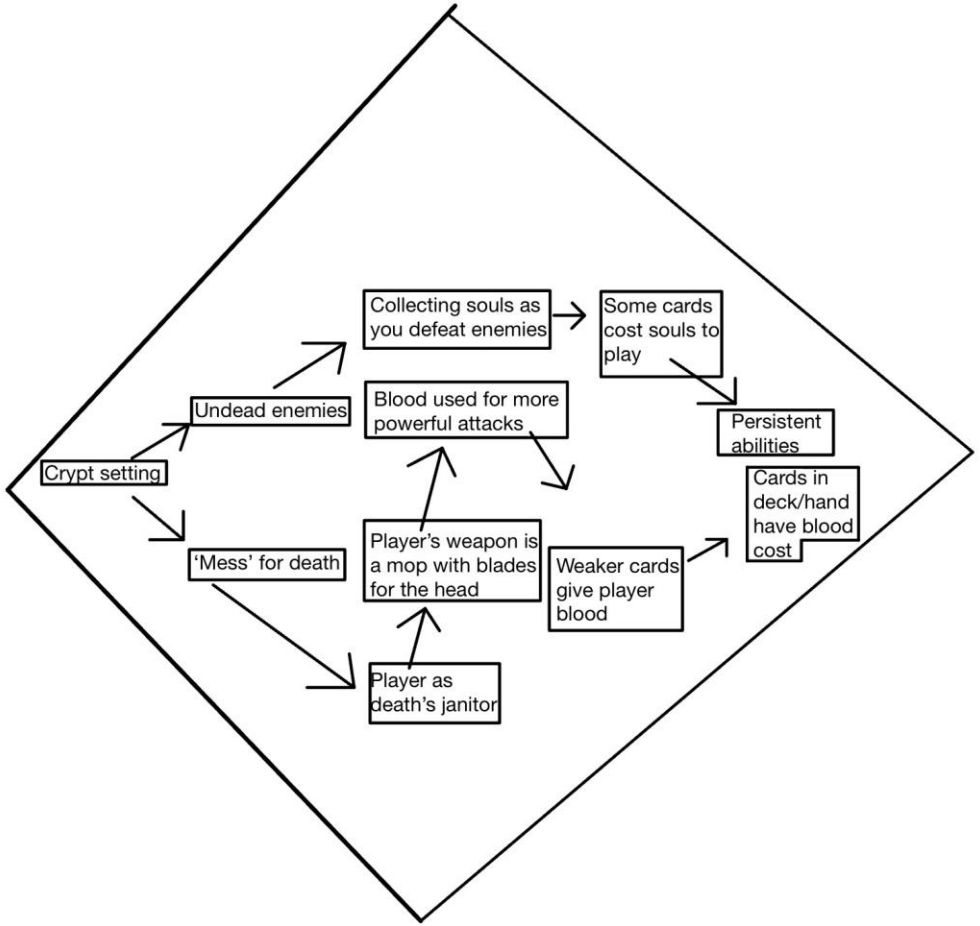
- With the many moving parts of a game, it is a powerful method to organize ideas within game development.



Broad Idea Generation

Starting Idea/spark



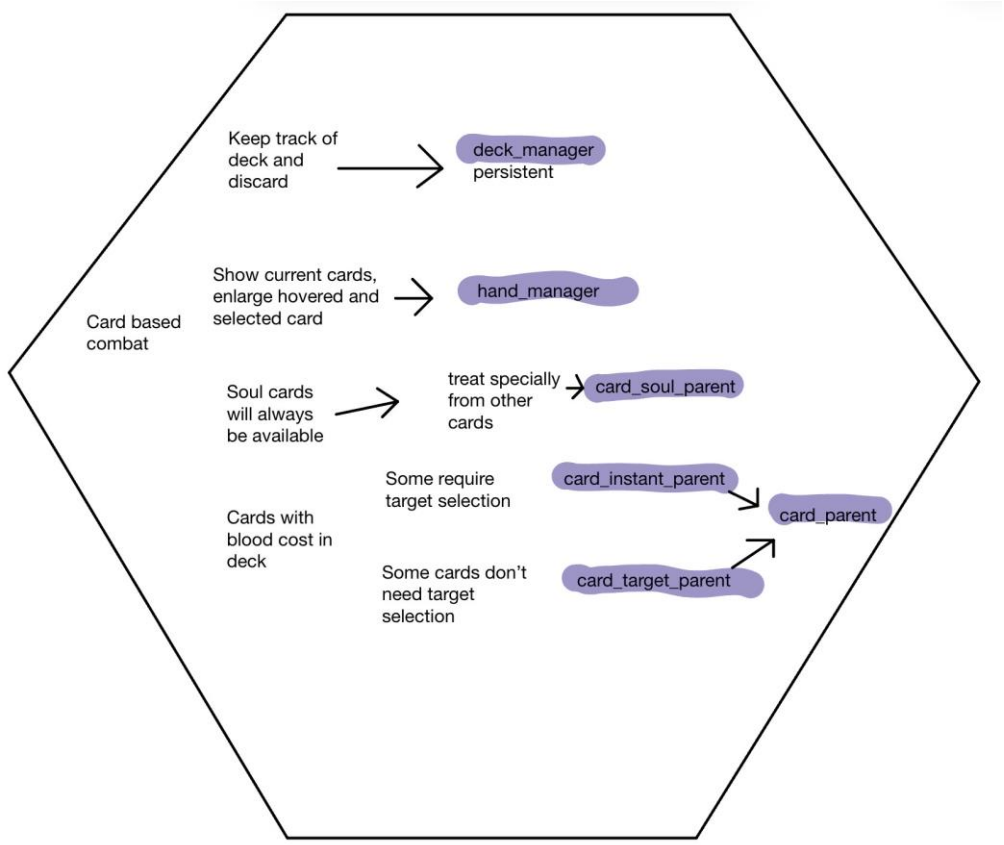


Vision for game

Specific Problem Solving

- Divergent and Convergent thinking can also be used to decide how to solve specific problems and develop specific implementations

- Starting with the idea of card-based combat, I expanded with the specific game mechanics I wanted, and decided on the objects I would use to organize them



Specific Problem Solving cont.

- When breaking down ideas during convergent thinking, my end goal is to create concrete steps or checklist items for every part of the portion of the project I am working on.

- Taking the time to organize in this way massively reduces the mental fatigue of juggling the many moving parts of developing a game.

- It also makes research much easier when I come across something I don't know how to do.

- Implement deck manager
  - Discard card function
  - Shuffle function
  - Refresh deck function
  - Draw card function

Implement hand manager
  - Draw hovered card and selected card on top
  - Center hand function to support multiple hand sizes
  - Keep track of selected card index
    - Set selected when card clicked
    - Adjust indexes when a card is played
    - Do not allow a non-hovered card to be clicked (to avoid clicking on a card behind intended one)

- Implement card_parent
  - Draw card bigger and offset when hovered/selected
  - Handle common functionality
    - check if player has resources to play
    - define variables
- Implement card_target_parent
  - Have click event set the selected card in hand manager
    - Enemy click event will call effect() if a card is selected
- Implement card_instant_parent
  - Have click event immediately call effect()

Final Thoughts

I used the programming of the card combat system as my example, but the divergent and convergent thinking methods are useful in all areas of game development.

For example, I had many more ideas for art of the game: unique attack animations for each card, higher resolution monster sprites with attack animations, etc. However, due to time constraints, I could not make all of it so had to decide on the core art elements that I thought were most important.

The diamond diagrams aren't necessary, but I believe ending with a concrete checklist is critical to get the most benefit from this method of thinking.