

# How Rewind Mechanics Affect Reflection, Player Experience, and Perceived Challenge in Games

How   Affect ,   Experience, and Perceived  in  

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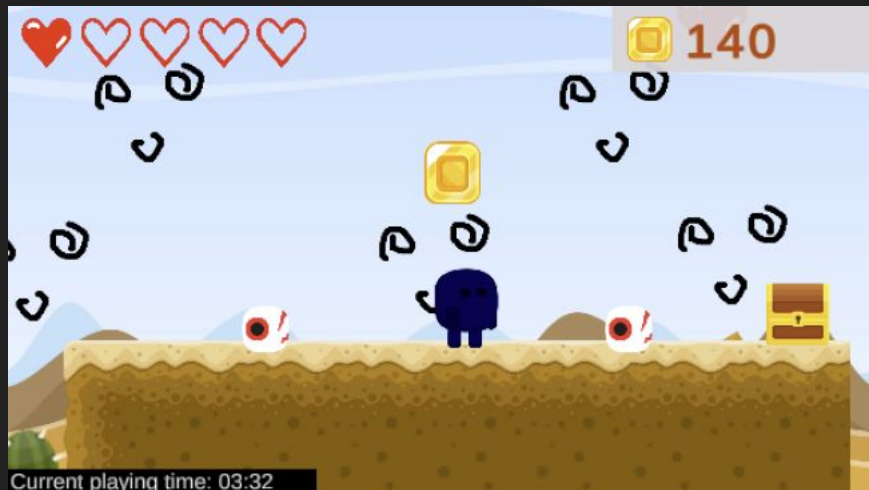
First step:

Defining my problem space

(i.e. read lots of papers, play/watch games, ~~caffeine~~)

# Previous work

## Challenge design in platformer games



## Relevant **player experience** findings

- **Autonomy** highest in permadeath and savepoint; lowest in automatic checkpoints
- Higher stakes gameplay (permadeath) increased **immersion**
- **Challenge** wasn't different among the 4 respawn conditions
  - Requires further study

# Challenge design in other game genres

- Definition of “challenge” has been expanded (CORGIS, Denisova et al.)
- Platformers often rely on **performative challenges**
  - “Addresses the player’s physical limitations to interact with the game, i.e. the speed and accuracy with which actions can be performed”
- What about games that rely on...
  - **Cognitive challenge**
    - “Addresses the player’s cognitive and problem-solving capacities... preparation, planning ahead, memorisation, effort and multi-tasking...”
  - **Emotional challenge**
    - “Confronts the player with emotionally salient material or the use of strong characters.... resolve tension in the narrative...”
  - **Decision-making challenge**
    - “Arising from having to make choices that were difficult or could lead to regrettable outcomes”

# Narrative / Story-driven Games

“characterized for its **dynamic change** in its game mechanics so they can add to the **story plot** and **elements**, which is similar to interactive storytelling”



# Why look at narrative games?

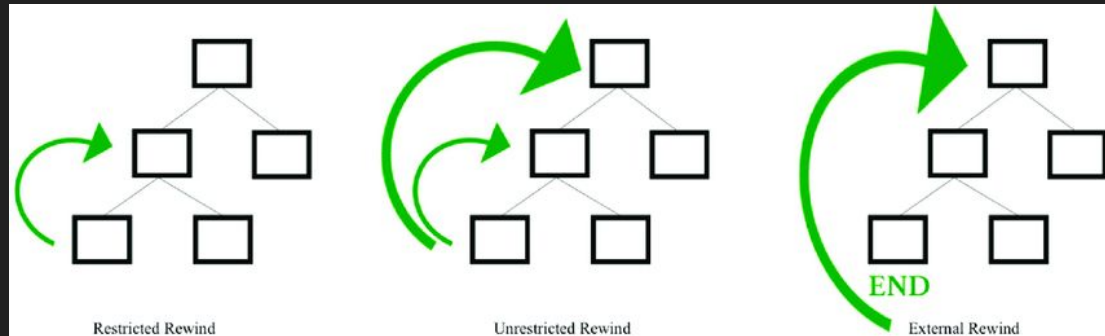


- Interest in **educational games**
  - Lab has work relating to interactive narratives and visual novels
- **Storytelling elements** in educational games and simulations have been found to make **learning more meaningful**
- Previous work has found that games can afford **reflective, emotional experiences** of varying degrees
- Games that are **emotionally-moving / challenging** have been found to evoke long-lasting memories for players
- Many have claimed that games afford reflective experiences; the importance of **reflection** is often emphasized in the design of games for learning

# Narrative and Games for Learning

Similar to games with respawning mechanics,

narrative-driven games often have **rewind mechanics** that allow the player to return to a previous point in the story.



# Important papers found during literature review

- **Narrative rewind and replay**

- Kleinman et al. (2018) - “Going Forward by Going Back: Re-defining Rewind Mechanics in Narrative Games”
- Wang et al. (2021) - “‘I need to play three times before I kind of understand’: A Preliminary Exploration of Players’ Reasons for (and against) Replaying a Visual Novel”

- **Games and reflection**

- Mekler et al. (2018) - “‘A Game that Makes You Question...’ Exploring the Role of Reflection for the Player Experience
- Fleck & Fitzpatrick (2010) - “Reflecting on Reflection: Framing a Design Landscape”
- Whitby et al. (2019) - “‘One of the baddies all along’: Moments that Challenge a Player’s Perspective”
- Dormann & Biddle (2010) - “Understanding Game Design for Affective Learning”

- **Challenge in games**

- Denisova et al. (2020) - “Measuring perceived challenge in digital games: Development & validation of the challenge originating from recent gameplay interaction scale (CORGIS)”



# Questions

**How do narrative rewind mechanics relate to perceived challenge and evoke reflective player experiences?**

- How is challenge designed for in narrative-driven games?
- How do those **narrative mechanics** foster levels of **reflection** during and after gameplay?
- How does the levels of **cognitive**, **emotional**, and **decision-making** challenge respectively relate to **engagement** and other **player experience constructs**?
- How do those challenge levels relate to experiences of reflection?

# Tentative study design

- Between subjects study, 2x2 factorial design
- Independent variables
  - Narrative rewind mechanic (similar to respawn pt locations)
    - **Player-controlled dynamic rewind**
      - Players are free to choose where to rewind to (i.e. save)
    - **Designer-controlled restricted rewind**
      - Rewind points are predetermined for player
  - Game mode
    - **Single-player**
    - **Cooperative two-player**
- Dependent variables
  - Perceived challenge ratings
    - **Emotional challenge**
    - **Decision-making challenge**
    - **Cognitive challenge**
  - Player experience constructs ratings
    - **Meaning, Mastery, Immersion, Autonomy, Curiosity**
  - Levels of reflection achieved
    - **Reflection description**
    - **Dialogic reflection**
    - **Transformative reflection**
    - **Critical reflection**
  - **Engagement**

# Tentative methods

- Qualitative
  - Observation
  - Semi-structured interviews
  - Thematic analysis
    - What levels of reflection were (or were not) achieved during and after gameplay
- Quantitative
  - Challenge Originating from Recent Gameplay Interaction Scale (CORGIS)
  - Player Experience Inventory (PXI)
  - Immersive Experience Questionnaire (IEQ)

# Next steps

- **Create** a game
  - Why?
    - Individually modify narrative rewind mechanics (similar to respawn study)
    - Using existing games could bias the results (e.g. preference to one game over other addressing a totally different topic)
- Identify emotionally complex topic to center game around
  - **Mental health**
  - Research
    - Read mental health blogs
    - Play/watch games that address mental health
- Determine best **format** for this type of game
  - 2D interactive narrative
  - 2D story-driven side-scrolling platformer
  - VR game
  - AR game

# Game #1 design ideas

- Focus on reducing mental health stigma (bipolar II disorder)
  - Ideas:
    - Person coming out of depressive episode and thinks they defeated depression, but begins hypomanic episode
    - Partner, friends, and co-workers notice hypomanic behaviors
    - Seek therapy
    - Co-op: Other player is partner and helps make decisions
- 2D platformer + interactive narrative
  - Control a character (controller)
    - Designer-controlled restricted rewind
      - Linear story
      - Move left: reverse previous decision
      - Move right: select next decision
    - Player-controlled dynamic rewind
      - Linear story
      - Pause Menu
        - Access timeline and enable “time travel” to a specific decision
  - After diagnosis, character consumes pills to progress – simple platforming

## Game #2 design ideas

- Focus on assisting people in mental health recovery programs:
  - DBT (balance acceptance and change)
    - Mindfulness
    - Interpersonal Effectiveness
    - Emotion Regulation
    - Distress Tolerance
  - CBT
    - Thoughts
    - Feelings
    - Behaviors
- RPG Maker?
  - Use to teach and/or practice DBT skills (accompany people in IOP/PHP programs)
    - Designer-controlled restricted rewind
    - Player-controlled dynamic rewind

## ✨ Hopes and dreams ✨

- Finalize research questions, study design (variables & measurements)
- Create lo-fi prototype of the game
- Playtest prototype with people

## How is this a serious game?

- Characterizing goals
  - Cognitive & perceptual competences
    - Understanding
    - Strategic thinking
    - Planning, management
  - Emotional control
  - Social competences
    - Cooperation
    - Mutual support
    - Empathy
    - Interaction and communication
    - Moral judgments