Al-Driven NPCs: Enhancing Player Challenges & Skill Development in Games

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Why Adaptive NPCs?

RPGS offer:

- > Rich worlds,
- Player freedom,
- > Storytelling.

Meaningful choices induce:

- > Emotional engagement,
- > Higher agency,
- > Immersion.

Question:

Can AI make NPCs more dynamic and responsive?

RPGs **suffer** from:

- Rigid morality,
- Repetitive quests,
- > Static difficulty.

Our Research Focus

How does an Aldriven NPC affect perceived challenge & decision-making?

Does adaptive conversation boost engagement & emotional connection?

Can it foster critical thinking & strategic decision-making?

From Static to Adaptive NPCs

Traditional NPCs
Scripted
Predictable

Al NPCs
Learn in real time
Adjusts difficulty







Balance complexity, Ethical risks

Our Game Prototype



Dark reimagining of Wonderland.



Implemented in *UE 5.3* with *OpenAl API*.

Player as a protagonist on a rescue mission for their sister, Alice.



Alice the Adaptive NPC

- Emotional & narrative anchor.
- Reacts to tone, curiosity, and context.
- Treats dialogue as gameplay.



"What's that big house over there?"

"That's our family's estate. It's grand, but I prefer the peaceful garden."





"Who are you really?"

"I'm your younger sister, Alice... Don't be silly."



How the System Works

Conversation Initiation

- by Alice or Player
- Set number of minimum exchanges

Information Exchange

- Contextual info flow
- Realistic responses

Personality Assessment

- via subtle questions & tone.
- Based on Alice's personal values

Affinity scoring (0-1)

- If score ≥ 0.5,
 Alice gives
 correct info.
- If score < 0.5,
 Alice
 misleads.

^{*}Affinity scoring mechanism is testing but not yet integrated into gameplay outcomes.

Exploratory User Study



7 undergraduate game design students

Case Study



Questionnaires: Godspeed & GEQ



Post-play interviews Dialogue logs.



15–20 min free conversation with Alice

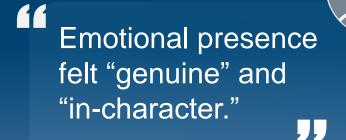
Results at a Glance





Likeability linked with Enjoyment with r =0.7

What Players Said





Open format was exciting but also confusing.

Tried to read Alice's mood and intentions.

Insights from the Pilot



Adaptive
NPCs can
boost
challenge &
engagement.

Opportunity for more replayability



Trade-off:
freedom
vs
structured
guidance.

Looking Ahead

Limitations

Opportunities

Small sample (1)

Persistent affinity

Short sessions (2)

(2) Emotional memory

No control group

Action-based NPC reactions

Technical issues

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Conclusions

Al-driven NPCs They complement, enhance immersion not replace, strong & challenge. narrative design. Player-NPC relationships can be Adaptive conversation more dynamic & can function as part of personal. the gameplay.

"Down the Rabbit Hole": Teaser Trailer



Thank You! Any Questions?



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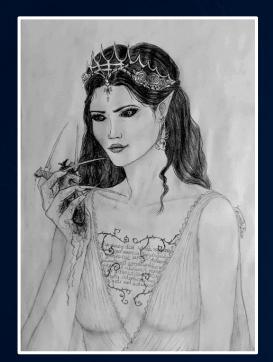
Full Conversation Example (Dialogue)

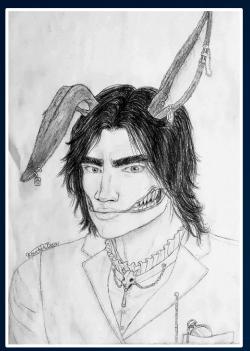
9	Who are you?	
	I'm Alice, your younger sister	9
9	Really?	
	Don't be silly, have you hit your head [PLAYER NAME]? I am your sister Alice.	9
9	What are you doing?	
	I'm reading "Guilliver's travels" [PLAYER NAME]. It's quite fascinating!	9
9	Where are we?	
	We are at our state's gardens near the lake, under the gazebo. It's such a lovely spot don't you think?	(2)
9	What is the huge house over there?	
	That's our family's estate [PLAYER NAME]. It has been in our family for generations. It's grand but i prefer the peacefulness of the garden.	
9	Should we go for a stroll?	
	Great! Let's go, I'll be there shortly!	

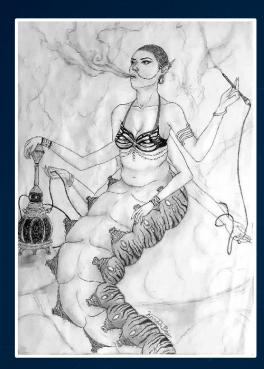
Full Conversation Example (Video)



"Down the Rabbit Hole": Creative Process











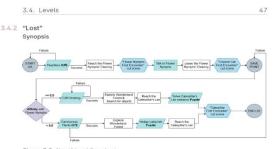


Figure 3.5: "Lost" level flowchart

After the player has landed in the outskirts of the Wonderland forest, they must escape two Heartless creatures through a OTE sequence. Successfully evading the Heartless, the player proceeds through the eerie forest, in order to reach the Flower Nymphs' clearing. The player encounters the Flower Nymphs, who provide guidance based on their affinity towards the player. Depending on the player's affinity level with the nymphs, they can either take a safe path involving climbing a cliff and solving a puzzle, or a risky path involving navigating through flesh—eating plants and a labyrinth. Both paths lead to the Caterpillar's lair in the heart of the Wonderland forest.

Physical Descriptio

The level takes place in the Wonderland forest, in the outskirts of the forest, consisting mostly of tall mushroom trees, and then the player visits the Flower Nymphs clearing. The paths the player takes include either the cliff area and

















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