Altruxa Path Game - Development Roadmap & Technical Documentation

Last Updated: October 25, 2025

Version: 1.5 (Stats Integration)

File: `altruxa-path-game-enhanced.jsx`

Table of Contents

Incomplete Code & TODO Items

🔴 HIGH PRIORITY

1. Disconnected Story Endings

Location: Lines 1900-1950 (approximate) **Issue:** Some new story branches don't properly connect to endings

```javascript
// story_3_legal_pathway (line ~1836)
// story_3_recorded_conversation (line ~1844)
// story_4_long_game (line ~1852)
// story_3_public_advocate (line ~1859)
```

Status: These endings have `isStoryEnding: true` but no menu return or final reflection **TODO:**

☐ Add "Return to Menu" button to all story endings

☐ Add final stat summary to each ending

☐ Connect endings to proper conclusion scene

☐ Test all story paths lead to complete endings

2. Missing End-Game Scenarios

Location: Lines 1920-2400 **Issue:** Original "Final Scenarios" (scene1, scene2, etc.) might not connect properly to new branches **TODO:**

☐ Verify all Maya's Journey endings properly transition

☐ Update transition text to acknowledge stat-gated paths

☐ Consider making final scenarios optional/bonus content

3. Stat Balance Needs Tuning

Location: Lines 625-755 (new stat-gated choices) **Issue:** Stat requirements might be too high for first playthrough

```javascript
// Current requirements:
requires: { wisdom: 7 }      // First gated choice
requires: { wisdom: 8, compassion: 6 }
requires: { wisdom: 9 }
requires: { wisdom: 10, empathy: 8 }
requires: { courage: 9, compassion: 8 }
```

TODO:

☐ Playtest to determine if stats reach these thresholds naturally

☐ Consider lowering initial requirements (5-6 range)

☐ Add more +2 and +3 stat gain choices earlier in story

☐ Create stat gain "cheat sheet" for testing

4. Assessment Score Conversion Formula

Location: Lines 237-257 **Issue:** Conversion from -10/+10 assessment to 0-10 stats needs validation

```javascript
const initialStats = {
  empathy: Math.max(0, Math.round((normalized.goodEvil + normalized.selfishSelfless) / 2) + 5),
  wisdom: Math.max(0, Math.round((normalized.scrupulousUnscrupulous + normalized.goodEvil) / 2) + 5),
  compassion: Math.max(0, Math.round((normalized.selfishSelfless + normalized.goodEvil) / 2) + 5),
  courage: Math.max(0, Math.round((normalized.couragePrudence + normalized.scrupulousUnscrupulous) /
};
```

TODO:

☐ Test edge cases (all negative assessment, all positive)

☐ Verify starting stats feel appropriate (currently 0-10 range)

☐ Consider adding assessment score display on compass view

☐ Document intended stat progression curve

🟡 MEDIUM PRIORITY

5. Incomplete Journal Integration

Location: Lines 2657-2677 (journal trigger logic) **Issue:** Journal prompts only trigger every 2 choices, might miss important moments **TODO:**

☐ Add manual journal entry option at any time

☐ Create scene-specific journal prompts for major decisions

☐ Add journal reflection to final summary/endings

☐ Consider journal achievement badges

6. Stats Display Context-Awareness

Location: Lines 164-185 (StatsDisplay component) **Issue:** Stats display shows on all scenes, might be distracting during story moments **TODO:**

☐ Add toggle to hide/show stats panel

☐ Consider condensed view during story scenes

☐ Highlight stats that just changed with glow effect

☐ Add tooltip explaining what each stat unlocks

7. Teaching Scenes Integration

Location: Various `isTeaching: true` scenes **Issue:** Teaching interludes exist but might not trigger at ideal moments **TODO:**

☐ Review when teaching scenes appear in flow

☐ Add CRT teaching for stat-gated moments

☐ Create teaching scene about stat growth system

☐ Link teaching content to unlocked choices

8. Navigation History Edge Cases

Location: Lines 62-85 (navigation functions) **Issue:** Back/forward navigation with modal interrupts (journal) might break **TODO:**

☐ Test navigation after journal entry

☐ Prevent navigation history pollution from modal opens

☐ Add navigation history size limit (prevent memory bloat)

☐ Consider adding "breadcrumb" navigation display

🟢 LOW PRIORITY

9. Moral Trajectory Chart Enhancements

Location: Lines 2305-2400 (approximate - MoralTrajectoryChart component) **Issue:** Chart is good but could show more insights **TODO:**

☐ Add stat growth over time to chart

☐ Show locked choices missed due to low stats

☐ Compare player path to "optimal" paths

☐ Export chart as image

10. Accessibility Improvements

Location: Throughout component **TODO:**

☐ Add ARIA labels to all interactive elements

☐ Keyboard navigation for all choices

☐ Screen reader testing and optimization

☐ High contrast mode support
☐ Font size controls

Known Bugs

🐛 CONFIRMED BUGS

Bug #1: Stat Change Notification Overlap

Location: Lines 186-207 (StatChangeNotification component) **Description:** If multiple choices made rapidly, notifications can overlap **Severity:** Low **Reproduction:**

1. Make choice that changes stats

2. Quickly navigate back and make different choice

3. Notifications stack without clearing **Fix Needed:** Add notification queue system or clear on navigation

Bug #2: LocalStorage Persistence After Reset

Location: Lines 50-60 (clearAssessment function) **Description:** Clearing assessment sometimes doesn't clear all derived data **Severity:** Medium **Reproduction:**

1. Complete assessment

2. Play through story gaining stats

3. Retake assessment

4. Old stat gains might persist **Fix Needed:** Clear score state when retaking assessment

Bug #3: Journal Modal Z-Index Issues

Location: Lines 2300-2400 (JournalModal component) **Description:** Journal modal might appear behind notification in some browsers **Severity:** Low **Reproduction:** Browser-specific, mainly Safari **Fix Needed:** Adjust z-index hierarchy, ensure modal is z-50+

Bug #4: Assessment Progress Not Updating

Location: Lines 2823-2850 (assessment rendering) **Description:** Progress bar sometimes doesn't update until question is fully answered **Severity:** Low **Reproduction:** Click answer option quickly **Fix Needed:** Ensure progress updates in handleAssessmentAnswer

⚠️ POTENTIAL BUGS (Needs Testing)

Potential Bug #1: Stats Overflow

Description: No maximum cap on stats - could grow indefinitely **Location:** Lines 2680-2716 (makeChoice stat updates) **Risk:** Medium **TODO:** Add max stat value (15? 20?) and test

Potential Bug #2: Circular Navigation

Description: Some story branches might allow circular navigation creating infinite loops **Location:** Various story scenes **Risk:** Low **TODO:** Map all story paths and verify no infinite loops

Potential Bug #3: Mobile Layout Breaking

Description: Stats panel might not render well on mobile (<375px width) **Location:** Lines 164-185 (StatsDisplay) **Risk:** Medium **TODO:** Test on various mobile devices, add responsive breakpoints

Potential Bug #4: State Synchronization

Description: Multiple state updates in rapid succession might cause race conditions **Location:** Lines 2645-2730 (makeChoice function) **Risk:** Low **TODO:** Consider using useReducer for complex state management

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Future Features (Planned)

Phase 2: Enhanced Gameplay

Feature: Stat Decay System

Priority: High **Description:** Stats decrease if you make choices contrary to that value
Implementation Notes:

- Add negative values to choice.values

- Show red downward arrows in stat notifications

- Cap minimum at 0 (or allow negative for "corruption" path?)

- Consider decay rate (lose 1 point per bad choice? Percentage?)

Code Location: Modify makeChoice function around line 2680

```javascript
// Proposed implementation
values: {
  empathy: 2,   // gain
  wisdom: -1    // decay from unwise choice
}
```

Feature: Achievement System

Priority: Medium **Description:** Award badges for various accomplishments **Proposed Achievements:**

- "Altruxan Exemplar" - Complete story with all stats > 10

- "Wise Counsel" - Unlock all wisdom-gated choices

- "Courageous Heart" - Unlock all courage-gated choices

- "Perfect Balance" - All stats within 2 points of each other

- "The Long View" - Reach "Long Game" ending

- "Voice of Justice" - Reach "Public Advocate" ending

- "Inside Reformer" - Reach "Reformer" ending

- "Journal Keeper" - Write 10+ journal entries

- "Self Aware" - Retake assessment 3+ times

- "Every Path" - Complete all story branches

Implementation: Add achievements array to state, check on endings

Feature: Character Classes

Priority: Low **Description:** Based on stat distribution, assign character class **Proposed Classes:**

- "The Sage" - Wisdom dominant (Wis > 10, Wis > other stats by 3+)

- "The Empath" - Empathy dominant

- "The Champion" - Courage dominant

- "The Compassionate" - Compassion dominant

- "The Balanced" - All stats within 2 points

- "The Strategist" - Wisdom + Empathy high

- "The Warrior" - Courage + Compassion high

Implementation: Add class calculation function, display in summary

Feature: Multiple Story Arcs

Priority: Medium **Description:** Add 2-3 more complete story scenarios beyond Maya's Journey
Proposed Scenarios:

1. "The Healer's Dilemma" - Medical ethics scenario

2. "The Teacher's Choice" - Education system challenges

3. "The Activist's Path" - Community organizing scenario

4. "The Artist's Integrity" - Creative work vs. commercial pressure

5. "The Researcher's Ethics" - Scientific integrity scenario

Implementation: Add new story_arc_2, story_arc_3 scene trees

Phase 3: Social & Persistence

Feature: Cloud Save System

Priority: High **Description:** Save progress across devices **Requirements:**

- User authentication (optional)

- Database backend (Firebase? Supabase?)

- Sync across devices

- Multiple save slots

Technical Debt: Currently only localStorage

Feature: Share Your Path

Priority: Medium **Description:** Generate shareable character profile/summary **Features:**

- Final stats visualization

- Key choices made

- Character class

- Unique URL to view (read-only)

- Twitter/social media share buttons

- Export as image

Feature: Compare Paths

Priority: Low **Description:** See how others approached same scenarios **Features:**

- Aggregate choice statistics ("85% chose to report")

- See friend's choices (opt-in)

- Explore alternate paths easily

Phase 4: Educational Enhancement

Feature: Guided Tutorial Mode

Priority: Medium **Description:** Optional walkthrough explaining mechanics **Features:**

- Highlight UI elements on first run

- Explain stat system

- Show example of gated choice

- Can be skipped/disabled

Feature: CRT Deep Dives

Priority: Low

Description: Expandable sections with deeper CRT theory **Features:**

- Links from teaching scenes to full CRT explanations

- Glossary of terms

- Connection to published CRT materials

- Academic citations

Feature: Educator Mode

Priority: Low **Description:** Tools for using game in educational settings **Features:**

- Classroom discussion prompts

- Facilitator guide

- Student reflection questions

- Group comparison features

Suggested Features (Ideas)

Community-Requested Features

1. Difficulty Settings

Adjust stat requirements for gated choices:

- **Beginner:** Requirements -2 (easier to unlock)

- **Normal:** Current requirements

- **Advanced:** Requirements +2 (emphasize mastery)

- **Altruxan Perfection:** Requirements +4 (very challenging)

2. Time-Based Scenarios

Add urgency mechanic:

- Some choices have time limits

- Pressure affects decision-making

- Unlocks "Grace Under Pressure" achievements

3. Relationship Tracking

Track relationships with story characters:

- Maya's coworkers

- Family members

- Legal team

- Journalists

- Relationship values affect available choices

4. Moral Complexity Slider

Let player adjust how much moral nuance they want:

- **Simple:** Clear good/evil choices

- **Moderate:** Current system

- **Complex:** Add situational modifiers, trolley problems

5. Custom Scenarios

Player-generated content:

- Scenario editor

- Community scenario sharing

- Voting on best scenarios

- Import/export scenario JSON

6. Meditation/Reflection Modes

Brief mindfulness exercises between major decisions:

- Breathing prompts

- Value clarification questions

- Perspective-taking exercises

7. Real-World Application

Connect to real ethical frameworks:

- Link choices to philosophical traditions

- Compare to religious ethical teachings

- Map to professional ethics codes

8. Stats Forecast

Show potential stat gains before choosing:

- Hover over choice to see stat impact

- Optional feature (can disable for immersion)

- "Strategic mode" vs "Intuitive mode"

9. Consequence Timeline

Visual map of how past choices affect current situation:

- Flow chart of decision tree

- Highlight critical decision points

- Show branching paths not taken

10. Personal Ethics Statement

Generate custom ethics statement based on choices:

- AI-generated summary of your values

- Formatted as personal mission statement

- Can edit and save

Code Architecture Notes

Component Structure

```
AltruxaPathGame (Main Component)
├── State Management (Lines 5-20)
│   ├── Scene navigation
│   ├── Scores/stats
│   ├── Assessment data
│   ├── Journal entries
│   └── History tracking
│
├── Data Loading (Lines 22-37)
│   └── localStorage sync
│
├── Core Functions (Lines 39-258)
│   ├── Assessment handling
│   ├── Navigation logic
│   ├── Choice processing
│   └── Stats conversion
│
├── Sub-Components (Lines 92-207)
│   ├── NavigationBar
│   ├── StatsDisplay
│   ├── StatChangeNotification
│   ├── JournalModal
│   └── MoralTrajectoryChart
│
├── Scenarios Data (Lines 258-1900)
│   ├── Assessment questions
│   ├── Menu/navigation scenes
│   ├── Teaching scenes
│   ├── Story scenes (Maya's Journey)
│   └── Final scenarios
│
└── Render Logic (Lines 2500-3470)
    ├── Loading state
```

```
├── Special scene types
├── Standard choices
└── Endings
```
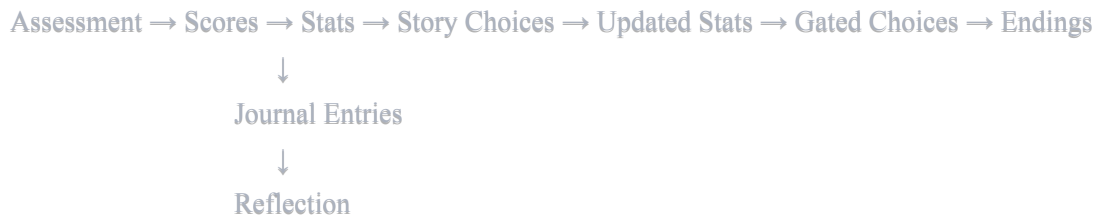
State Management Patterns

Current Approach: useState hooks (18 separate state variables)

Considerations for Refactor:

- Consider useReducer for complex state (scores, choices, history)

- Context API for deeply nested components (stats display)

- Consider state management library (Zustand, Redux) if expanding significantly

Data Flow

```
Assessment → Scores → Stats → Story Choices → Updated Stats → Gated Choices → Endings
                         ↓
                   Journal Entries
                         ↓
                     Reflection
```

Critical Functions

1. **submitAssessment()** (Line 215)
   - Processes all assessment answers

   - Normalizes scores to -10/+10

   - Converts to initial character stats

   - Sets up for story

2. **makeChoice()** (Line 2645)
   - Handles ALL player choices

   - Updates stats

   - Tracks story choices

- Manages journal prompts

- Navigates to next scene

3. **isChoiceAvailable()** (Line 2761)
   - Validates stat requirements

   - Determines which choices player can see

   - Critical for stat-gating system

LocalStorage Schema

```javascript
// Current storage keys:
{
  "altruxaAssessment": {
    goodEvil: -10 to +10,
    selfishSelfless: -10 to +10,
    scrupulousUnscrupulous: -10 to +10,
    couragePrudence: -10 to +10
  },

  "altruxaJournal": {
    [sceneId]: "entry text",
    ...
  }
}

// Missing storage:
// - Current stats
// - Story progress
// - Unlocked achievements
// - Character class
```

Performance Considerations

Current:

- All scenarios loaded in memory (~3500 lines)

- No code splitting

- No lazy loading

If Expanding:

- Consider lazy loading story arcs

- Split assessment/teaching/story into modules

- Implement virtual scrolling for long lists (journal view)

Testing Checklist

Functional Testing

Assessment Flow

☐ All 8 questions can be answered
☐ Progress bar updates correctly
☐ Can't submit until all answered
☐ Submit converts to proper starting stats
☐ Stats in expected range (0-10)
☐ Assessment saves to localStorage

Story Flow - Main Path

☐ Can navigate from intro → assessment → compass → story
☐ All story scenes have valid next scenes
☐ No dead ends in story tree
☐ Can reach at least one ending from any branch
☐ Back/forward navigation works
☐ Menu return works from any scene

Stats System

☐ Stats display shows correct values
☐ Stat changes trigger notifications

- ☐ Notifications display correct values
- ☐ Stats persist through navigation
- ☐ Stats affect choice availability correctly
- ☐ Locked choices show proper requirements

Gated Choices

- ☐ Cannot click locked choices
- ☐ Locked choices show requirements
- ☐ Requirements check all specified stats
- ☐ Can unlock choices by gaining stats
- ☐ High-stat playthrough reaches advanced endings

Journal System

- ☐ Journal prompts appear after 2 story choices
- ☐ Can write and save entries
- ☐ Entries persist in localStorage
- ☐ Can view journal from menu
- ☐ Journal entries show for correct scenes
- ☐ Can skip journal without breaking flow

Edge Case Testing

- ☐ Rapid clicking doesn't break state
- ☐ Can retake assessment multiple times
- ☐ Clear assessment removes all data
- ☐ Browser refresh maintains state (where appropriate)
- ☐ Works with localStorage disabled (degrades gracefully?)
- ☐ Very long journal entries don't break layout

Browser Testing

- ☐ Chrome (latest)
- ☐ Firefox (latest)
- ☐ Safari (latest)
- ☐ Edge (latest)

- ☐ Mobile Safari (iOS)
- ☐ Mobile Chrome (Android)

Responsive Testing

- ☐ Desktop (1920x1080)
- ☐ Laptop (1366x768)
- ☐ Tablet (768x1024)
- ☐ Mobile (375x667)
- ☐ Mobile Small (320x568)

Accessibility Testing

- ☐ Keyboard navigation works
- ☐ Screen reader compatible
- ☐ Color contrast meets WCAG AA
- ☐ Focus indicators visible
- ☐ No keyboard traps

Development Priorities

Immediate (Before Public Release)

1. Fix all disconnected story endings

2. Balance stat requirements

3. Test all story paths

4. Fix localStorage bugs

5. Basic mobile testing

Short Term (v1.6)

1. Add stat decay system

2. Implement achievements

3. Add character classes

4. More comprehensive testing

Medium Term (v2.0)

1. Second story arc

2. Cloud save system

3. Social sharing features

4. Tutorial mode

Long Term (v3.0+)

1. Multiple story arcs

2. Community scenarios

3. Educator tools

4. Real-world applications

Contributing Guidelines

Code Style

- Use descriptive variable names

- Comment complex logic

- Group related functions

- Keep components under 100 lines where possible

Adding New Choices

```javascript
```

```javascript
{
  text: "Choice text",
  next: "next_scene_id",
  consequence: "What happens (for reflection)",
  alignment: "Moral classification",
  storyData: {
    choice: "identifier",
    moral: -3 to +3
  },
  values: {
    empathy: 0-3,
    wisdom: 0-3,
    compassion: 0-3,
    courage: 0-3
  },
  requires: {  // optional
    empathy: 5,
    wisdom: 7
  }
}
```

Adding New Scenes

```javascript
scene_id: {
  title: "Scene Title",
  text: "Scene description",
  image: "🎭",
  isStoryChoice: true,  // or other scene type
  choices: [...]
}
```

Testing New Features

1. Test happy path

2. Test edge cases

3. Test with localStorage disabled

4. Test on mobile

5. Test all navigation paths

Contact & Support

Developer: Claude (Anthropic AI Assistant)

Original Concept: Irintai (Cosmological Recursion Theory)

Framework: Altruxa Philosophy

Version History

v1.5 (2025-10-25) - Stats Integration

- Added assessment → stats conversion

- Implemented stat-gated choices

- Added stat change notifications

- New story branches and endings

- Enhanced visual feedback

v1.4 - Journal & Teachings

- Journal reflection system

- CRT teaching interludes

- Moral trajectory visualization

v1.3 - Navigation Enhancement

- Back/forward navigation

- History tracking

- Menu system

v1.2 - Maya's Journey Expansion

- Multiple story branches

- Consequence tracking

- Ending summaries

v1.1 - Assessment System

- 8-question moral assessment

- Four-axis scoring

- Visual compass display

v1.0 - Initial Release

- Basic scenario system

- Choice tracking

- Simple stat system

Last Updated: October 25, 2025 **Next Review Date:** November 1, 2025