



The Traitors: UWTSD Edition

A Mobile Social Deduction Game

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1. Introduction

Usability Engineering is a systematic, user-centred approach to designing interactive systems that are effective, efficient, and satisfying [1]. Rather than treating usability as an afterthought, it embeds user needs into every stage of the design process, from initial research through to evaluation [2], [3].

This report documents the usability engineering process behind The Traitors: UWTSD Edition, a mobile social deduction game designed for students and staff across the University of Wales Trinity Saint David. Inspired by the BBC television programme, the game assigns players the role of either Faithful or Traitor, supporting six players per session in short rounds suited to campus social contexts. The report begins by presenting six detailed personas with associated requirements, then describes the user research methods employed, discusses how established usability principles informed the wireframe designs, and concludes with an evaluation of prototype feedback.

2. Personas and Requirements

Following a goal-directed design methodology [4], six personas were developed to represent the UWTSD community across three campuses (Swansea, Birmingham, and London), encompassing students and staff with diverse ages, technical confidence, and accessibility needs. Each persona is accompanied by a MoSCoW prioritisation table [5] translating their needs into Must Have, Should Have, Could Have, and Won't Have requirements.

2.1 Matthew Groves

Matthew represents the experienced student gamer expecting fast, competitive play.

Table 1: Persona Card: Matthew Groves

MG Matthew Groves Age: 21 · Male · 2nd Year BSc Applied Computing · UWTSD Swansea	
 BACKGROUND	Matthew is a computing student who plays competitive online multiplayer games daily and is always looking for new social deduction games to play with friends between lectures.
 TECH CONFIDENCE	High Gaming Laptop Smartphone
 ACCESSIBILITY NEEDS	No specific accessibility requirements
 GAMING PREFERENCES	- Daily gamer, 2+ hours per session - Competitive multiplayer and strategy games - Enjoys social deduction (Werewolf, Among Us)
 SCENARIO	Matthew wants to set up a quick game with his coursemates during a break. He creates a lobby, shares the room code, and expects to start playing within a minute.

Table 2: MoSCoW Requirements: Matthew Groves

Must Have	Should Have	Could Have	Won't Have
- Fast game creation - Room code sharing - Real-time gameplay - Under 15-min sessions	- Player statistics - Competitive leaderboard - Quick rematch	- Custom game rules - Spectator mode	- Complex tutorials - Single-player mode

2.2 Anna McCarthy

Anna represents casual gamers with dyslexia, requiring clear visuals and minimal text.

Table 3: Persona Card: Anna McCarthy

AM Anna McCarthy Age: 19 · Female · 1st Year BA Health and Social Care · UWTSD Birmingham	
 BACKGROUND	Anna is a Health and Social Care student who enjoys casual mobile games during her commute. She has dyslexia and finds text-heavy interfaces frustrating, preferring clear visuals and icons.
 TECH CONFIDENCE	Medium iPhone
 ACCESSIBILITY NEEDS	• Dyslexia: requires clear, readable fonts • Good line spacing and short text blocks • Icon-based navigation preferred
 GAMING PREFERENCES	• Casual gamer, plays during commute • Mobile puzzle and word games • Short sessions (10-15 minutes)
 SCENARIO	<i>Anna receives an invite link from a friend. She opens it on her phone and hopes to understand how to play quickly without reading a long tutorial.</i>

Table 4: MoSCoW Requirements: Anna McCarthy

Must Have	Should Have	Could Have	Won't Have
• Clear readable fonts (min 16px) • Icon-based navigation • High contrast text • Simple visual onboarding	• Text-to-speech support • Adjustable font size • Short tutorial with images	• Dyslexia-friendly font option • Audio cues	• Text-heavy instructions • Small dense UI

2.3 Bryan Morris

Bryan represents technically proficient staff unfamiliar with gaming.

Table 5: Persona Card: Bryan Morris

BM Bryan Morris Age: 45 · Male · IT Support Technician (Staff) · UWTSD London	
 BACKGROUND	Bryan works in IT support and is confident with technology professionally, but he rarely plays games and would need clear guidance to get started. He wears reading glasses and prefers larger text.
 TECH CONFIDENCE	High (Professional) Desktop PC Android Phone
 ACCESSIBILITY NEEDS	• Wears reading glasses: prefers larger font sizes • Clear, uncluttered UI with good contrast
 GAMING PREFERENCES	• Rarely plays games • Would try if colleagues invited him • Prefers straightforward rules and clear objectives
 SCENARIO	<i>Bryan's colleagues invite him to play during a lunch break. He needs to understand the rules quickly and looks for a How to Play section with step-by-step instructions.</i>

Table 6: MoSCoW Requirements: Bryan Morris

Must Have	Should Have	Could Have	Won't Have
• Large readable text • Clean layout • Step-by-step onboarding • Clear role explanations	• Adjustable text size • Tooltips • Progress indicators	• Guided walkthrough • FAQ section	• Cluttered screens • Assumed gaming knowledge

2.4 Jolene Green

Jolene represents users with colour vision deficiency (protanopia) [6].

Table 7: Persona Card: Jolene Green

JG Jolene Green Age: 22 · Female · 3rd Year BA Graphic Design · UWTSD Swansea	
 BACKGROUND	Jolene is a Graphic Design student who values aesthetics. She has red-green colour blindness (protanopia) and needs visual cues beyond colour to interpret interface elements.
 TECH CONFIDENCE	Medium-High MacBook iPhone
 ACCESSIBILITY NEEDS	• Red-green colour blindness (protanopia) • Cannot rely on colour alone for information • Needs icons or labels alongside colour coding
 GAMING PREFERENCES	• Plays story-driven and visually rich games • Values atmosphere and design quality • Moderate gamer, 3-4 times per week
 SCENARIO	<i>Jolene is drawn to the game by its dark theme. During voting, she needs to identify Traitors and Faithful without relying on red/green indicators, using icons or text labels instead.</i>

Table 8: MoSCoW Requirements: Jolene Green

Must Have	Should Have	Could Have	Won't Have
• No colour-only indicators • Icons paired with labels • High contrast UI • Role ID without colour	• Pattern differentiation • Customisable themes • Visual hierarchy	• Dark mode • Atmospheric design	• Red/green coding • Colour-only indicators

2.5 Demi Malpass

Demi represents time-poor mature students with limited technical confidence.

Table 9: Persona Card: Demi Malpass

DM Demi Malpass Age: 38 · Female · MBA Business Management · UWTSD Birmingham	
 BACKGROUND	Demi is a working mother studying for her MBA with very limited free time and low-medium technical confidence. She values simplicity and gets frustrated by complicated interfaces.
 TECH CONFIDENCE	Low-Medium Android Tablet Android Phone
 ACCESSIBILITY NEEDS	• No specific disability • Requires simple, intuitive navigation
 GAMING PREFERENCES	• Very occasional gamer • Prefers short sessions (under 15 minutes) • Values social connection with fellow students
 SCENARIO	<i>Demi's study group suggests playing as an icebreaker. She joins from her tablet after putting the kids to bed and needs to complete a game within 15 minutes.</i>

Table 10: MoSCoW Requirements: Demi Malpass

Must Have	Should Have	Could Have	Won't Have
• Simple navigation • Quick setup • Clear state indicators • Sessions under 15 min	• Resume game • Join via link • Timer countdown	• Time-limit setting • Quiet notifications	• Complex configuration • Multi-step setup

2.6 Ben Lewis

Ben represents users with motor impairments requiring accessible touch targets [6].

Table 11: Persona Card: Ben Lewis

BL Ben Lewis Age: 35 · Male · Student Engagement Team · UWTSD London	
 BACKGROUND	Ben works in Student Engagement at the London campus, organising inclusive events. He has Repetitive Strain Injury (RSI) in his right hand and struggles with rapid tapping or small touch targets.
 TECH CONFIDENCE	Medium iPhone Laptop
 ACCESSIBILITY NEEDS	• RSI in right hand • Needs large, well-spaced touch targets • Minimal rapid or repetitive tapping
 GAMING PREFERENCES	• Social and party games • Prefers inclusive games everyone can join • Moderate gamer, plays weekly with friends
 SCENARIO	<i>Ben is organising a Welcome Week event and wants to use The Traitors as a group activity. He needs to set up a game for 6 players using large buttons that do not aggravate his RSI.</i>

Table 12: MoSCoW Requirements: Ben Lewis

Must Have	Should Have	Could Have	Won't Have
• Large touch targets (44x44px) • Minimal rapid tapping • One-handed operation • Simple host controls	• Voice input • Auto-advance timers • Gesture alternatives	• Left-hand mode • Haptic feedback	• Rapid tap sequences • Small buttons • Swipe-heavy nav

3. User Research Methods

Two complementary methods were employed: a closed card sorting study and a structured questionnaire [1]. Both recruited 10 participants aged 19 to 48, exceeding the recommended minimum of five users [7], and purposively sampled to reflect diversity in age, technical confidence, gaming experience, and accessibility needs.

3.1 Card Sorting

A closed card sorting study was conducted to investigate how users categorise game features [8]. Four categories were defined: Setup and Navigation, Gameplay Actions, Results and Feedback, and Settings and Profile. Each participant received twenty cards labelled with interface functions, including “Create Game”, “Join via Code”, “Vote to Banish”, “Accessibility Options”, and “How to Play Tutorial”, and was asked to sort them into the given categories. The results, shown in Table 13, confirmed strong agreement across participants.

Table 13: Card Sorting Results

Category	Cards Grouped by Participants
Setup & Navigation	Create Game, Join via Code, Game Lobby, Room Code Sharing, How to Play Tutorial
Gameplay Actions	Vote to Banish, Chat During Discussion, Night Phase Selection, View Player Status
Results & Feedback	View Player Roles, Game Results, Round Summary, Game History
Settings & Profile	Accessibility Options, Timer Settings, Profile Settings, Notification Preferences

This strong agreement validated the proposed navigation structure, confirming it matches users’ mental models [9].

3.2 Questionnaire

A structured questionnaire of fifteen questions gathered data on gaming habits, device preferences, accessibility requirements, and familiarity with social deduction games. Seventy percent of respondents primarily use smartphones (Figure 1), validating the mobile-first approach. Sixty percent preferred sessions under 15 minutes. The sample included 40% casual, 30% regular, 20% non-gamers, and 10% competitive (Figure 2), indicating onboarding must cater to beginners without frustrating experienced players. Thirty percent reported accessibility needs including dyslexia, colour vision deficiency,

and motor difficulties, reinforcing WCAG 2.2 compliance as a core requirement [6]. Half had played similar games such as Among Us, whilst half had not, necessitating a dedicated How to Play section with visual guidance.

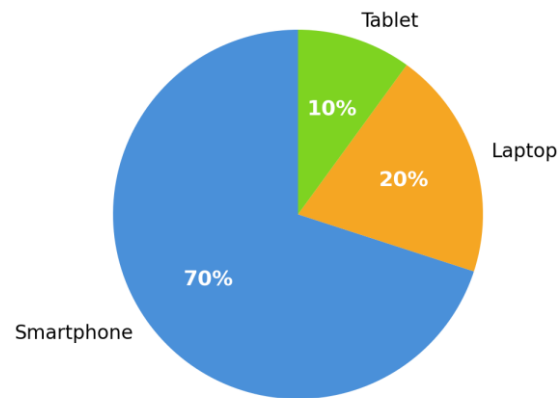


Figure 1: Primary Gaming Device Preference

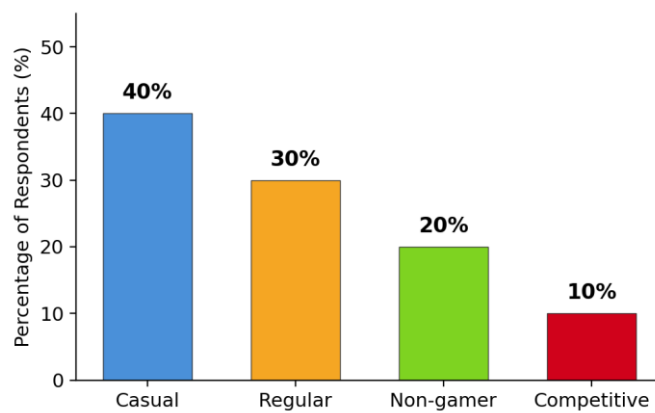


Figure 2: Gaming Experience Distribution

4. Designing for Usability

The wireframe designs were guided by established usability principles. The eight golden rules of interface design [2] provided the structural foundation: consistency was maintained through uniform button placement, typography, and navigation patterns. Every screen provides informative feedback through phase headers, countdown timers, and player status indicators, addressing the visibility of system status heuristic [3]. Error prevention was addressed through confirmation dialogs, and eliminated players are marked with a cross symbol rather than a colour change, ensuring accessibility for users with colour vision deficiency.

The interface uses familiar terminology from the television programme, leveraging natural mapping [9], and player avatars remain visible throughout all phases, supporting recognition over recall [10]. All interactive elements meet the 44×44 pixel minimum touch target from WCAG 2.2 [6], aligning with Fitts's Law [2]. Information is never conveyed through colour alone, and typography uses a sans-serif font with generous spacing to support users with dyslexia [11].

A Hierarchical Task Analysis decomposed the primary user goal into discrete sub-tasks [12]. The resulting flow chart (Figure 3) confirms the game can be completed through eight screens, each corresponding to a single task, keeping cognitive load manageable [13].

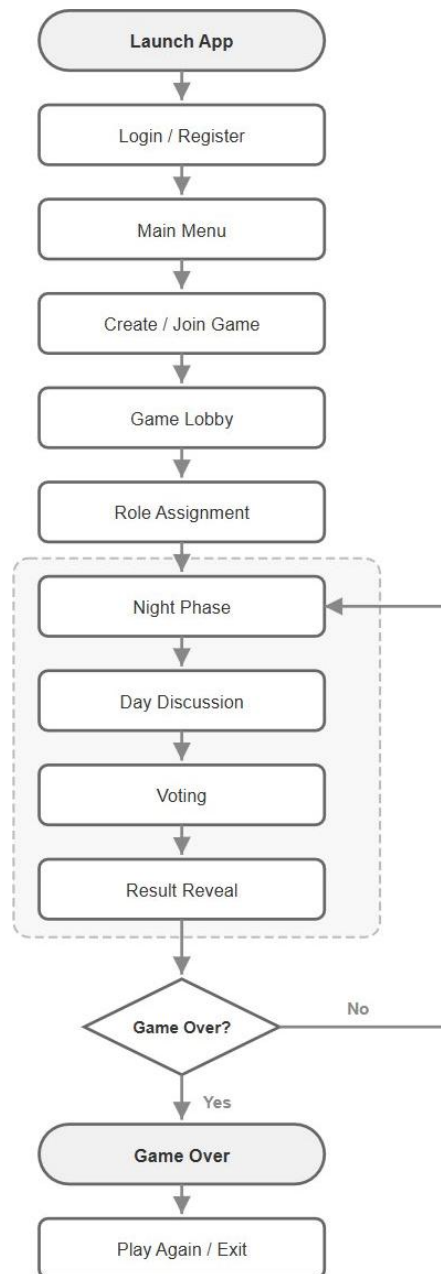


Figure 3: Game Flow Chart

5. Wireframe Storyboards

Eight wireframe screens were designed in greyscale to represent the complete user journey, each presenting a single primary action to minimise cognitive load [13].

The welcome screen (Figure 4) features login fields accepting email or UWTSD student ID, with uniform gradient buttons and a footer offering password recovery and help. The main menu (Figure 5) greets logged-in user and presents four labelled cards with icons and subtitles, reflecting the Setup and Navigation category from card sorting, with a bottom navigation bar for Home, Profile, History, and Settings.

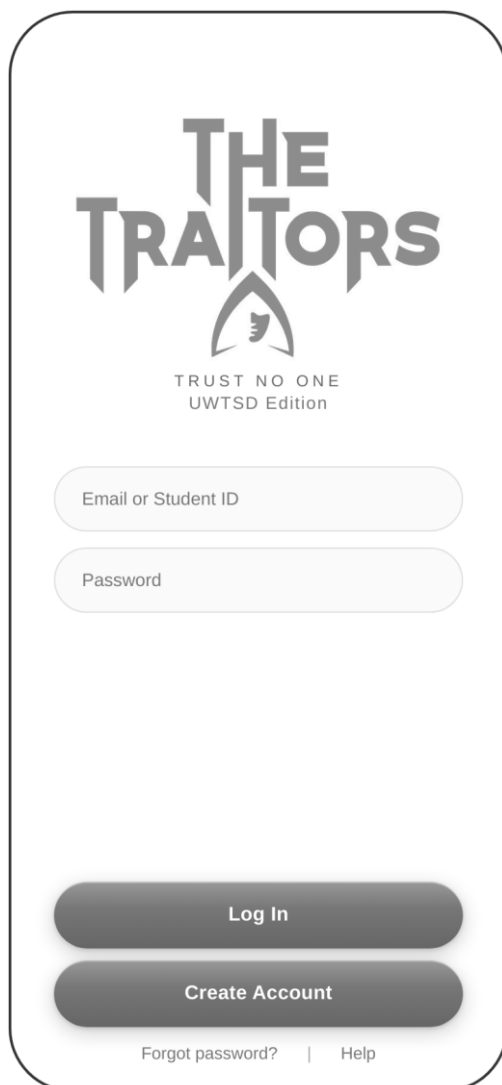


Figure 4: Welcome and Login

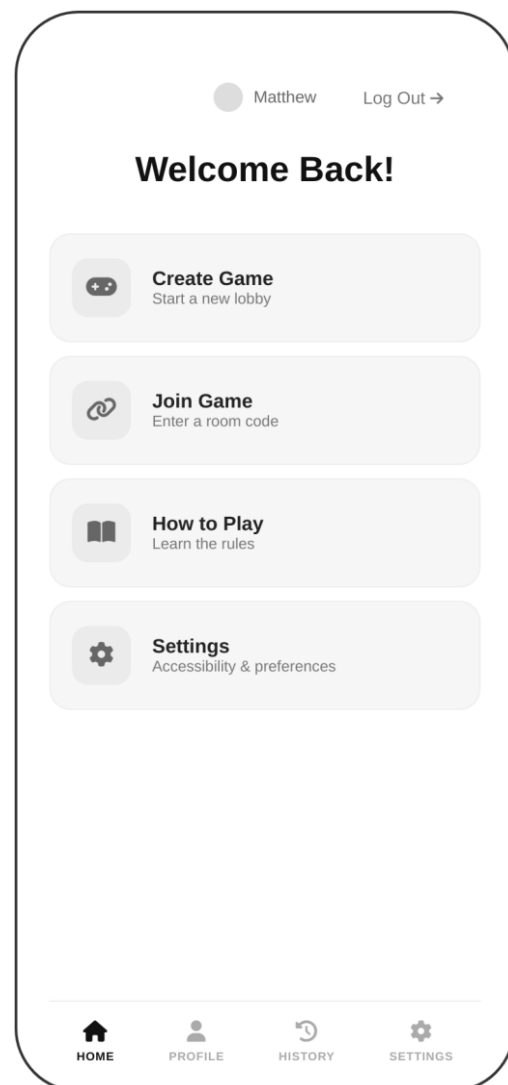


Figure 5: Main Menu

The game lobby (Figure 6) displays a four-character room code in a dashed border, a player count, the host marked by a star, and empty slots as dashed circles. The role

assignment screen (Figure 7) presents the assigned role against a dark theme with a dagger icon for the Traitor and a brief objective description, creating a dramatic reveal moment.

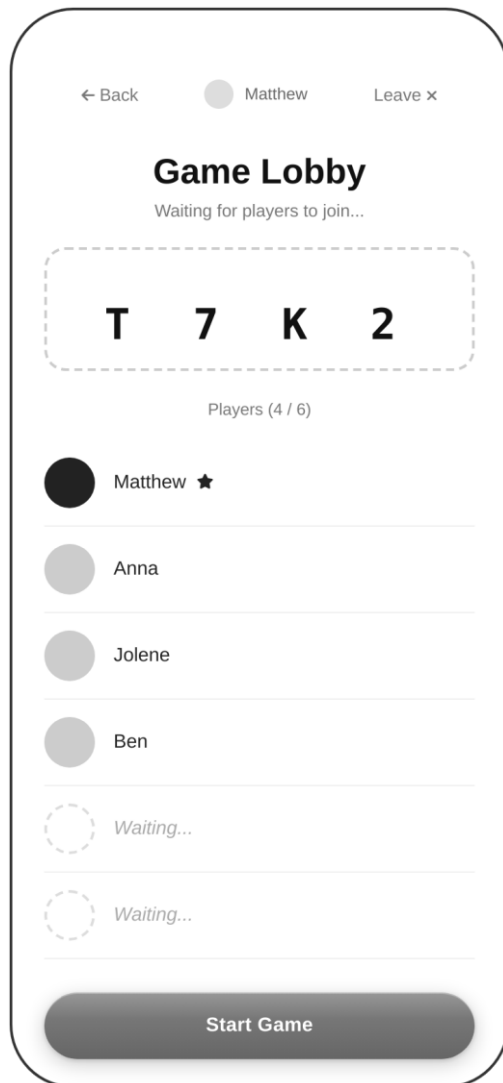


Figure 6: Game Lobby

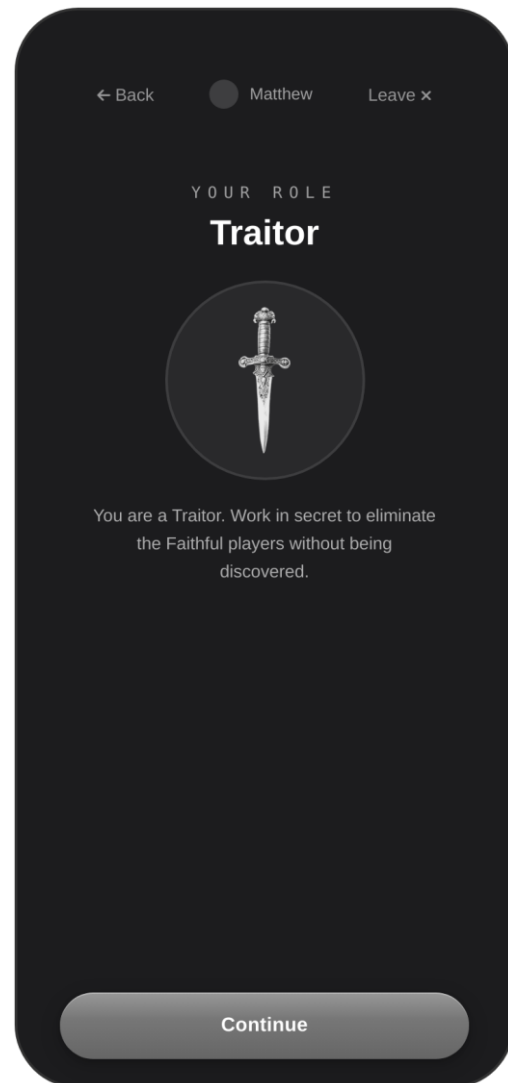


Figure 7: Role Assignment

During the night phase (Figure 8), Traitors secretly choose a victim from a player grid under a countdown timer; the selected target is highlighted with a white border and hollow avatar rather than colour, ensuring accessibility for colour-blind users, while the fellow Traitor appears greyed out with a dagger icon. The following morning, the discussion screen (Figure 9) reveals the eliminated player struck through with a cross and provides a chat area for players to debate who they suspect, with a round indicator and countdown timer.

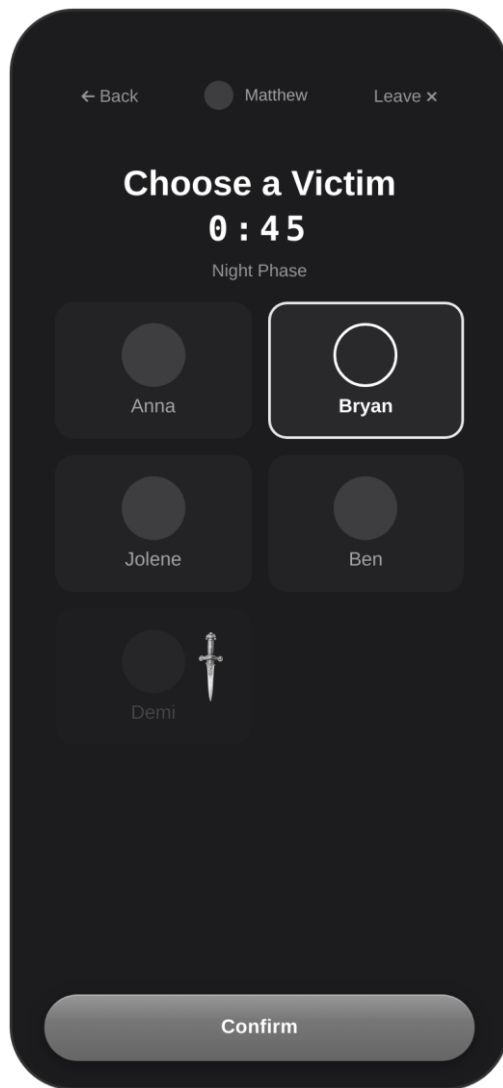


Figure 8: Night Phase

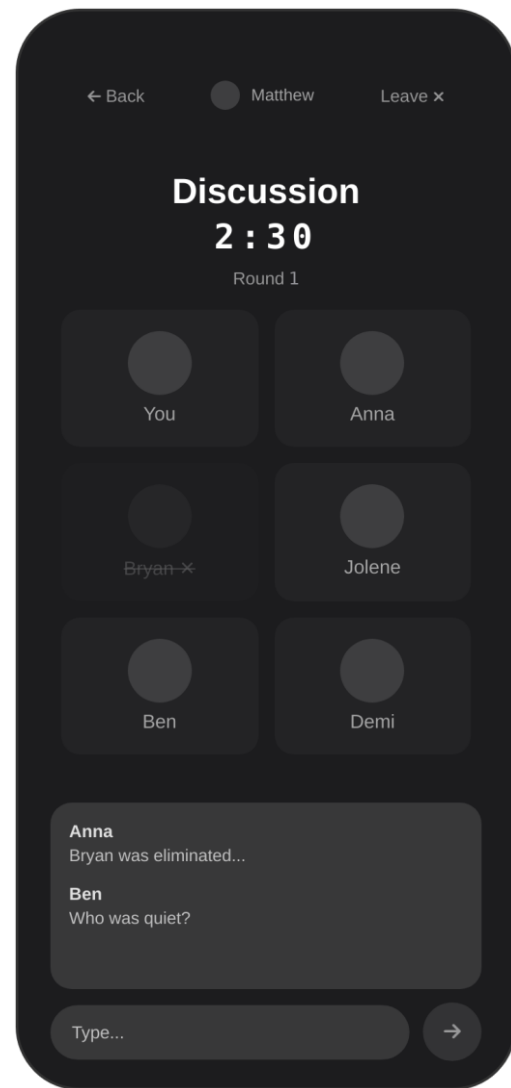


Figure 9: Day Discussion

Following the discussion, players vote to banish a suspected Traitor. The voting screen (Figure 10) lists remaining players with radio-button selectors and a Confirm Vote button, preventing accidental submissions. The results screen (Figure 11) reveals each player's role through text labels, distinguishing winners with ticks, eliminated players with strikethroughs and crosses, and remaining losing players greyed out, alongside personal statistics and Play Again and Back to Menu buttons

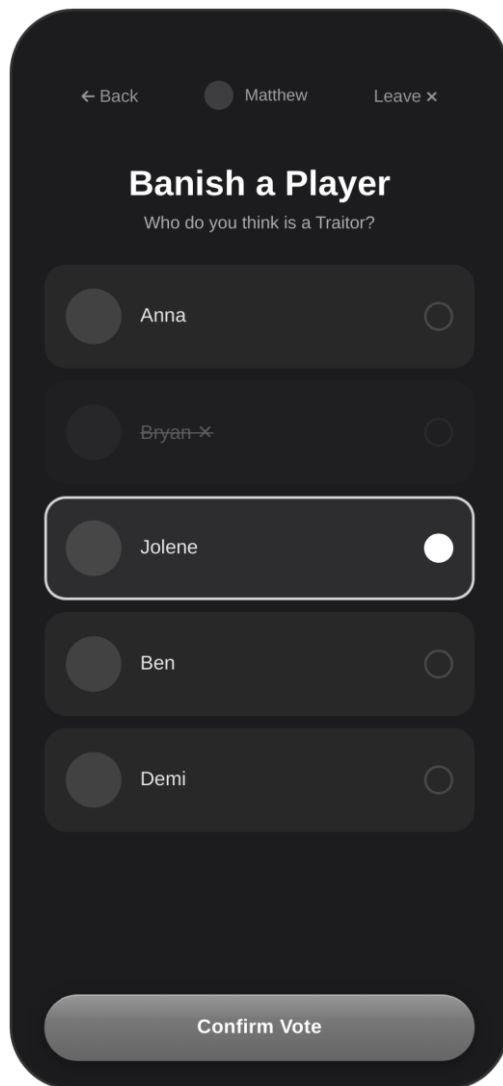


Figure 10: Voting

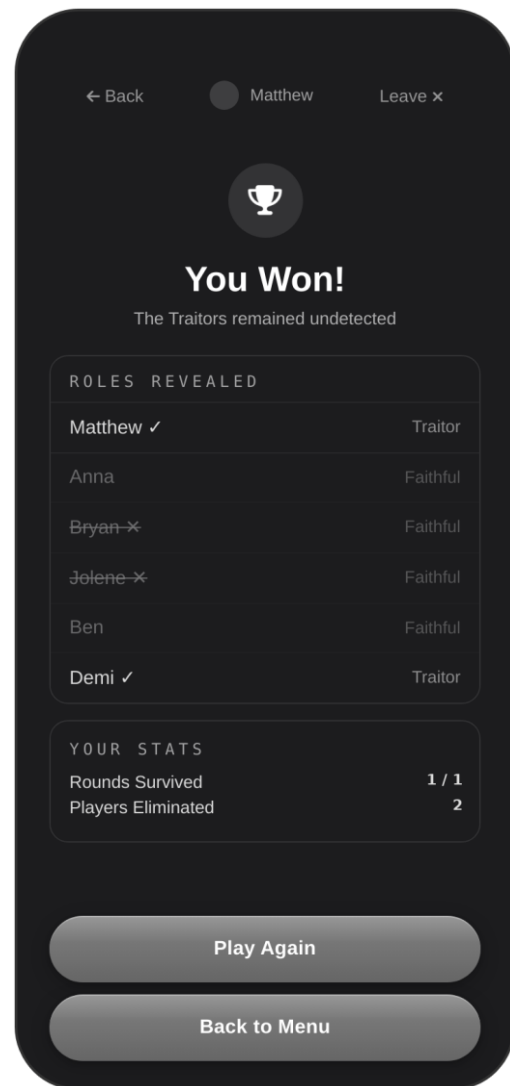


Figure 11: Game Results

6. Prototype Feedback

The wireframes were evaluated with 10 testers purposively mapped to the six personas defined in Section 2, covering experienced gamers, casual users, non-gamers, and testers with dyslexia, colour vision deficiency, and repetitive strain symptoms. Each tester was guided through three task scenarios using the wireframe storyboards, providing feedback on usability, clarity, and emotional response via a think-aloud protocol [1]. Table 14 summarises the findings.

Table 14: Prototype Feedback Summary

Tester	Positive Feedback	Negative Feedback	Expected?
Tester 1	Clean one-action-per-screen layout. Play Again button on results screen appreciated.	No private chat screen between Traitors visible in the design; unclear how they would coordinate eliminations.	Yes
Tester 2	Clear icons, simple layout. Onboarding felt intuitive.	Wanted larger font in chat messages.	Partly
Tester 3	Role reveal screen is visually impactful. Step-by-step flow felt logical.	No option to skip to voting when discussion feels complete; players must wait for the timer to expire.	No
Tester 4	Dark theme contrasts well with the light menus, creating a sense of separation between inside and outside the game.	No private chat between Traitors shown in the Night Phase design.	Yes
Tester 5	Simple join process. Traitor ally clearly marked with dagger icon.	Back button present during live gameplay phases where returning is not logically possible.	Yes
Tester 6	Large buttons, one action per screen. Room code design is clear and immediate.	Chat input area is small relative to other touch targets.	No
Tester 7	The Traitors branding on the welcome screen sets the tone immediately. Results stats felt competitive.	No visible communication channel between the two Traitors during the Night Phase.	Yes
Tester 8	Role assignment screen was visually striking and immediately clear.	No contextual help during gameplay to explain what each phase requires.	Partly
Tester 9	How to Play on main menu was reassuring.	Would prefer contextual help tooltips across all gameplay screens, not just the tutorial.	Partly
Tester 10	Clear game state headers throughout all phases.	Back button during live game phases is confusing as players cannot return to a previous round.	Yes

Emotional responses were consistently positive, with testers praising the dark-light theme contrast, the role assignment screen, and the dagger icon for Traitor identification. Several criticisms were anticipated: three testers noted the missing Traitor chat, two questioned the Back button during live phases, and two requested

contextual tooltips across all screens [3]. Less expected feedback included a request to skip the discussion timer and the chat input area being small relative to other touch targets. These findings identified key areas for improvement to be addressed in the next iteration.

7. Conclusion

This report has documented the usability engineering process behind The Traitors: UWTSD Edition. The six personas ensured the design addressed a broad range of users across three campuses, including those with dyslexia, colour vision deficiency, motor impairments, and varying levels of technical confidence. The wireframe storyboards were grounded in established usability principles and accessibility guidelines, while user testing confirmed the design is both intuitive and accessible. Feedback identified key areas for development, including a Traitor communication channel, contextual in-game tooltips, revised navigation during live phases, and font adjustments. Overall, the iterative process of persona creation, research, design, and evaluation has produced a solid foundation for a fully accessible and engaging mobile game.

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