

Cooperation and Competition in Video Games: Implications for Collaborative Systems



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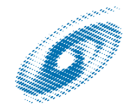
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Outline

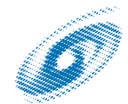
- Background
- Describe study
- Findings
- Implications for design

Roles in Collaborative Systems

- Human activity is flexible, nuanced, and contextualized
- Technology does not support this very well (Ackerman, 2000)
- Examples:
 - Initial failure of online shared calendars
 - Videoconferencing systems

Why Video Games?

- Designed for multiple simultaneous players in different roles
- Users' goals not producing work output, but having fun
- Little existing research on console video games
- Research questions:
 - What roles do players assume during game play? How stable are roles?
 - How well does the game support multiple simultaneous roles?



Related Work

- Answer Garden (Ackerman 1998)
- CoWeb (Guzdial 2000)
- Evaluation of groupware (Neale 2004)

About Madden

- Very popular console video game
- Supports multiple users, as teammates or opponents
- Users can choose any position
- Game AI controls other players
- Selecting plays



Method

- Play one football half as teammates, the other as opponents -- counterbalanced
- No instruction or help provided, except access to the manual
- After playing, interviewed about their experiences

Design

- 2x2 mixed design
- Between-subjects: expert vs. novice users
- Within subjects: opponents vs. teammates

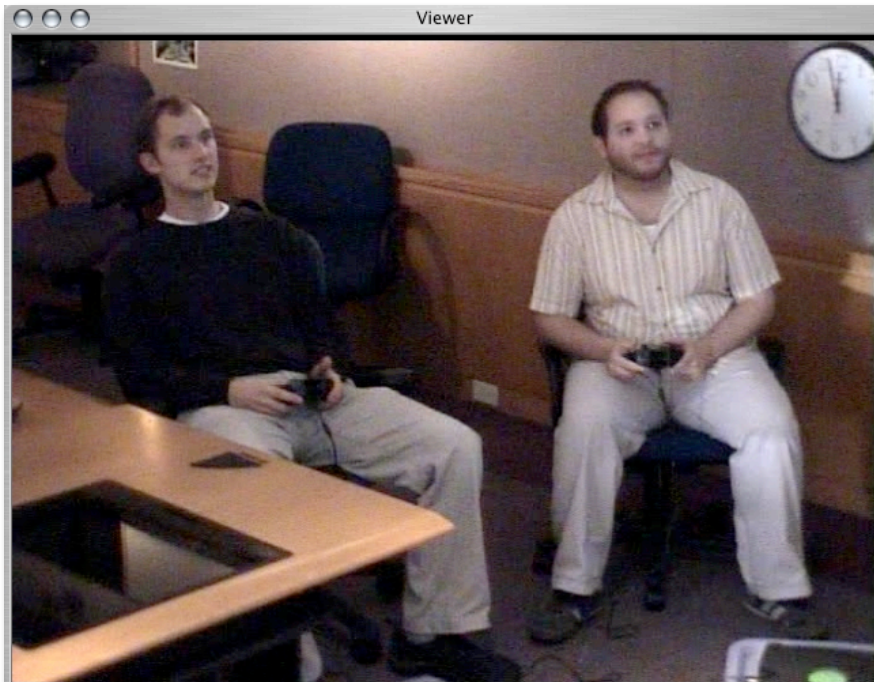
Game Mode (within) by Experience (between)	Teammates	Opponents
Experts	2 Groups	2 Groups
Novices	2 Groups	2 Groups

Participants

- 8 University of Michigan Graduate Students, recruited via email and personal relationships (6 men, 2 women)
- Participated in pairs, matched according to football video game experience when possible

Equipment

- Microsoft Xbox with 2 controllers
- Madden 2005 by EA Games
- Behavioral Lab
 - Projector, screen, sound system
 - Recording equipment



Findings (1)

- Roles “built-in” to study
 - Expert vs. novice
 - Opponent vs. teammate
- Roles we observed
 - Leaders
 - Followers

Findings (2)

■ Leaders...

- Cooperative: assumed quarterback position, called plays, offered advice
- Competitive: responded to requests for advice, but not all the time

■ Followers

- Cooperative: assumed receiver position, rarely provided input on plays, recipient of advice
- Competitive: most requests for advice went unanswered

Findings (3)

■ Usability problems

- When playing as teammates
 - Who am I? Orange or Green?
 - Passing, coordinating plays
- For novices: information overload
 - Target audience is people who know a lot about football
 - Controller layout help screens not utilized during gameplay

■ Competitive was more fun than cooperative



Implications

- Video games: special case of groupware system
 - Competition, not collaboration

- Unintended consequences of design decisions
 - Supporting one role at the expense of others

Thank You!

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