Core Ideas for Writing

Meaning Ratio

$$meaning\ ratio = \frac{meaningful\ words}{total\ words}$$

Four Core Questions

1. What is the real-world problem that we are trying to solve?
2. Why is it important to solve this problem?
3. What is the solution that we came up with to solve it?
4. How do we know that the solution is a good solution to the problem?

Tutorial: Dissecting a CHI Paper

Structured discussion of the following paper:
http://ecologylab.net/research/publications/GameAwarenessCHI2018.pdf

Jason Wuertz, Sultan A. Alharthi, William A. Hamilton, Scott Bateman, Carl Gutwin, Anthony Tang, Zachary Toups, and Jessica Hammer. 2018. A Design Framework for Awareness Cues in Distributed Multiplayer Games. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, NY, USA, Paper 243, 14 pages. DOI: https://doi.org/10.1145/3173574.3173817

- Read the paper.
- Which parts of the paper are excellent? Why do you think they are?

Dissecting the Abstract

Lay of the land, explaining why the problem is relevant and matters:

In the physical world, teammates develop **situation awareness** about each other's location, status, and actions through cues such as gaze direction and ambient noise. To support **situation awareness**, distributed multiplayer games provide **awareness cues**—information that games automatically make available to players to support cooperative gameplay.

The actual research problem:

The design of awareness cues can be **extremely complex, impacting how players experience games and work with teammates**. **Despite the importance of awareness cues, designers have little beyond experiential knowledge to guide their design.**

How we are addressing the research gap or problem:

In this work, we describe a design framework for awareness cues, providing insight into what information they provide, how they communicate this information, and how design choices can impact play experience.

Our contribution to CHI and takeaways:

Our research, based on a grounded theory analysis of current games, is the first to provide a characterization of awareness cues, providing a palette for game designers to improve design practice and a starting point for deeper research into collaborative play.

Dissecting the Introduction

Lay of the land, explaining why the problem is relevant and matters:

Teams working together in the physical world develop situation awareness [13, 14] about teammate location, status and actions through cues such as body language, gaze direction, and ambient noise [29, 31, 61]. Distributed games help players coordinate by providing **awareness cues** —information that systems automatically make available to collaborators to support cooperative actions [44]. Distributed games are played together by players on separate devices typically arranged so that players cannot see each others' screens. Thus, it is primarily through awareness cues that teammates' status, characteristics, actions, experience, etc. are represented and understood. Because gameworlds , the virtual worlds that players experience as the interface to games [35], are artificial and lack the sensory cues that make coordination as natural as it is in the physical world, **awareness cues must be designed to provide the right information at the right time**. Game designers have additional latitude to create detailed and complex representations of actions and events that occurred in past, present and future, and are not limited only to approximating cues that exist in the physical world.

Why the problem is an important one:

Since teammates in distributed games are largely experienced through awareness cues, the **principal challenge for game designers is to create tools that will provide the right information at the right time** [62]. **The design tension is to balance this information with ensuring that the game remains challenging, so giving a player omniscience is undesirable**. If a game designer provides too little information, coordination will be cumbersome, awkward, and slow; if they provide too much information, cues could be overwhelming, difficult to learn, and distract from gameplay. On the other hand, some games opt to purposely limit awareness cues to increase uncertainty and realism, and some even provide this as a separate game mode (e.g., Left 4 Dead 2 (L4D2) [G21], Rainbow Six: Siege [G19]). In contrast, other games try to raise the ceiling on performance by providing many rich awareness cues and tools, which can be initially overwhelming and increase the game's learning curve (e.g., League of Legends (LoL) [G17], Dota 2 [G23]). Despite the importance of awareness cues in distributed games, there is currently little information about what information game designers provide, how it can be provided, and what trade-offs might exist with particular designs.

How we are solving the problem:

Using a grounded theory approach, we examined 24 games, selected for maximum variability, from which we identified and analyzed 100 awareness cues. Our research provides a characterization of the range of awareness cues currently in use through game mechanics, interface components, and other information displays.

How we structured solving the problem and our paper:

We do this by first articulating the **information made available through awareness cues to teammates**. Second, we describe the **essential design dimensions of awareness cues** and **how they make** teammate **information available**. Third, we discuss **potential consequences** for games and play experience when particular design choices are made.

Why our research matters:

While **prior work** has considered synchronous verbal communications [8,56,67] and cooperative communication mechanics (game mechanics invoked by players to communicate with one another) [37, 60, 64, 70], our work focuses on the **understudied tools and techniques** that games use to **support coordination**, which are made available to players **without explicit effort.**

Our main contribution to CHI:

Building on previous work in awareness, this work makes **two main contributions**. First, **we provide a palette for game designers and researchers** to identify and **devise new awareness cues** depending on the game experience they want to target. We expect that users of games (players and viewers) influence **how cues should be designed** and also **consider how players adapt their play experience** through cues. Second, we provide a starting point for future research and for **informed design practices around awareness cues** in online games, and in groupware more broadly.

Exercise: Writing the CHI Abstract and Introduction

Build a brief research plan for a CHI publication (10 minutes)

- Problem statement
- Indication of your methodology
- Anticipated main findings
- Anticipated conclusions

Now, write your own *Title*, *Abstract*, and *Introduction* for the research plan you have developed (30 minutes).

Pass around your written paragraphs and discuss them in groups (of 3-4), I will assist. 20 minutes for discussions.

Tutorial and Exercise: Bullet pointing the CHI paper

Use the four questions to guide you through the process of writing a fictional CHI paper about this research topic that you have in mind:

- What is the real-world problem that we are trying to solve?
- Why is it important to solve this problem?
- What is the solution that we came up with to solve it?
- How do we know that the solution is a good solution to the problem?

Use the same process as many CHI authors:

- Sketch the rough answers to each question into bullet points
- Get together a maximum of 15 bullet points among all 4 questions
- Start writing out the bullet points into paragraphs
    - **What contribution do you envision?**
    - **What research plan do you foresee?**
    - **Can you expand on your existing work?**
    - **What results do you need?**

If you have time, use the **nine-step editing system**:

1. Read through your text
2. Break it up into points (ideas, thoughts, arguments)
3. Make sure every single point makes sense
4. Delete nonessential or redundant points
5. Make sure each point is unique and distinguished enough
6. Create sections by creating categories for the points
7. Make the sections flow into one another
8. Sort your points into the categories
9. Make it read well by focusing on simple, clear, and elegant language

I will come around and assist your writing.