

---

# Capturing Fun: creating a tool to measure social interaction during play testing

**Steve Bromley**

University of Sussex  
Brighton, BN19RH, UK  
steve@stevebromley.com

**Abstract**

Measuring social interaction during collocated play testing sessions is a current challenge for researchers, created by the rise in popularity of multiplayer social and 'casual' games.

This extended abstract describes the creation and application of a tool to measure social interaction, influenced by interviews and play testing sessions with a games development company. It also describes potential future applications for this tool.

**Author Keywords**

Video games, collocated gaming, social interaction, user test method, User Experience (UX), behavioural coding,

**ACM Classification Keywords**

H5.2. Information interfaces and presentation

**Introduction**

The importance of defining and measuring social interaction is prominent within current games research. The continued success of casual collocated games, which rely on interaction between the players as a core design element, is evident through the multiplayer

focus of top selling games such as Wii Sports or Just Dance 2 [2].

In order for games development companies to optimise the social interactions created by their games, it is apparent that there is a need create a practical tool for measuring social interaction.

### **Why measure social interaction?**

Interviews with members of the design, production and QA teams of Relentless Software, creators of the popular Buzz series [3], revealed that they were interested in capturing social interaction data from their play testing sessions. They intended to use this data to identify areas where there is potential to optimise the amount of or shape the type of interactions created.

Relentless Software were interested in the potential of profiling players early in the development process, and ensuring that their prototypes were creating the correct interactions to attract these players. By creating a practical tool to allow them to capture social interaction data during play testing, they would be able to rate their prototypes objectively against their desired goals.

### **What elements of social interaction should be captured?**

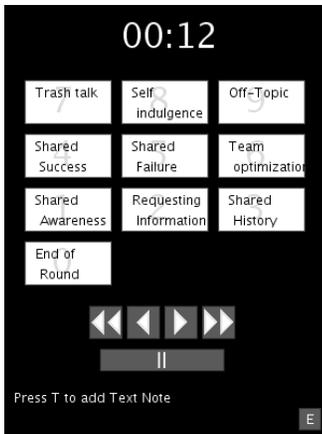
Voida et al. [4] defined 6 key types of behaviour displayed in collocated gaming sessions, through a review of player's behaviour during multi-player games such as Guitar Hero and Mario Party. In their paper they ran a number of collocated group console gaming sessions, and identified behaviours which related to, or altered the social dynamics of the group.

Through questionnaires and group game-play sessions, they identified the key forms of interaction, which was directly utilised for this study as the basis for coding social interaction.

These categories were revised based on the priorities of Relentless Software, and the final categories of interaction are listed in Table 1.

<b>Social Interaction Category</b>	<b>Description</b>
Shared Awareness	Building a shared awareness of the game state, including collaborative working out, giving hints, or describing the action.
Requesting Information	Asking about what is happening in game, how the game works, or how to achieve their goal.
Shared History	Discussing what happened earlier in the game, or in a prior play session.
Shared Success	Celebrating a group success, or congratulating another player on their success.
Shared Failure	Taking group responsibility for failing a task, offering reassurance, or commiserating with a player.
Team Optimisation	Discussing the group dynamics, or negotiating an individual's contribution to the group.
Trash Talk	Celebrating the player's own success over the other players, or laughing at their failure.

**Table 1.** The revised categories of social interaction recorded by the tool.



**Figure 1.** The tool used to capture social interaction data.

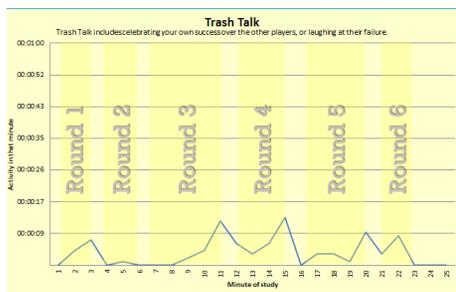
In addition to capturing the nature of the social interaction noted, additional data points were required to make use of this information. Noting the time and duration of each interaction was required, since this would allow the tool to plot the development of interactions over time, in response to different in-game events. Additionally, by capturing the level/section in which the interaction occurred, analysis would be able to create level by level breakdowns showing the amount and type of social interaction created by each.

Finally, the ability to add time stamped text comments was required, to allow the researcher to capture quotes, or not any interesting qualitative behaviour outside of the pre-defined categories.

### Creating useful results

Interviews and paper prototyping sessions with producers at Relentless Software revealed how actionable results could be created. An initial prototype suggested producing a high level overview, rating the degree to which each form of interaction appeared over the play session. However Relentless revealed that further granularity was required.

As a result of iterative prototyping sessions, it was deemed that the tool should create graphs showing a timeline of each interaction over the entire session. This could then be aggregated onto “overview” timelines, by defining forms of social interaction as “desired” or “undesired”. Finally, level by level graphs were created, detailing the quantity of each interaction on a per level basis allowing the development team to compare and contrast them.



**Figure 2.** An example export displaying ‘trash talk’ behaviour over 6 rounds.

### Creating the tool

The tool used to capture the interaction data was created in Processing [1], an “electronic sketchbook” that allows coders to quickly create and iterate upon software. Processing was selected due to requiring a low level of technical ability to update the program, short compile time, and its ability to export to multiple formats, ensuring that researchers would be able to use the software regardless of their OS.

The tool comprised of a number of buttons, one for each form of interaction (Figure 1). When activated, either by clicking or by pressing a hotkey on the keyboard, the button stayed active until turned off, allowing researchers to note the duration of interaction events. The tool also includes a timer, and the ability to manipulate the timer, so that accurate time stamps of social interaction events can be achieved.

A final button on the tool allows the researcher to denote an ‘end of round’ event, so that level by level data can be separated during analysis.

This tool exports a CSV list, noting the type, timestamp and duration of each occurrence of a social interaction, which could then be imported into an excel file.

The excel file converted the raw data into a table showing a minute by minute breakdown of the session. This was then picked up by pre-created graphs, to create the final deliverables, an example of which is given in Figure 2.

In order to meet the requirements of Relentless, a number of timelines were automatically created for the duration of the sessions, plotting the degree of each form of interaction during each minute. Higher level

overviews were also created by aggregating these interactions, and providing level by level breakdowns.

### **Training researchers**

Researchers and internal staff at Relentless Software were trained in the use of this tool for collocated play testing sessions. Due to the simple GUI and the implementation of in-app assistance such as tooltips, the software itself did not require much training. The automated export process also decreased the amount of preparation required by researchers.

In order to reduce subjectivity and ensure that researchers and internal staff were recording the same events, a 'cheat sheet' was created giving users a guide to the forms of interaction they should be looking for, and how to record them. Validation of alignment between different researchers' interpretations of the interaction noted was performed by having multiple observers use the tool for the same session. A high degree of correlation was noted between the final graphs from each observer, implying that all were able to identify the forms of interaction seen in the sessions accurately.

### **Next steps**

This abstract has described the creation of a tool used to capture social interaction data from play testing sessions, which was applied to a research project with Relentless. There are a number of areas that this research could be further applied too.

By improving researcher's abilities to capture in game events, this tool can provide a low cost alternative to event tracking implemented within the game's code.

The automated analysis of these results can also improve the turn-around time of researcher's findings.

A benefit of creating the tool in Processing is that changes are quick to make, and versions of the tool can be adapted for specific purposes. An adaption of this tool has already been made for the purpose of "manual telemetry", where pre-defined in-game events, such as deaths, retries or difficulty spikes, can be recorded. This can prove useful for teams who are unable to spare the technical bandwidth to implement true telemetry systems in their games for the purpose of play testing.

### **Acknowledgements**

Thanks to Pejman Mirza-Babaei and Graham McAllister for their support with the application of this tool.

Thanks to Relentless Software for their time & effort over the last 2 years in informing the development of this methodology, facilitating play testing sessions and validating that the tool works.

### **References**

- [1] Fry, B. and Reas, C. Processing, <http://processing.org>
- [2] Gamasutra. Ubisoft: Just Dance Passes 4 Million, Katy Perry Joining The Party. 2010. [http://www.gamasutra.com/view/news/30814/Ubisoft\\_Just\\_Dance\\_Passes\\_4\\_Million\\_Katy\\_Perry\\_Joining\\_The\\_Party.php](http://www.gamasutra.com/view/news/30814/Ubisoft_Just_Dance_Passes_4_Million_Katy_Perry_Joining_The_Party.php) (accessed April 2011).
- [3] Relentless Software, Buzz! Quiz World. (Game) 2009.
- [4] Volda, A. Carpendale, S. and Greenberg, S. "The Individual and the Group in Console Gaming." CSCW '10 Proceedings of the 2010 ACM conference on Computer supported cooperative work, 2010