A Method for Design Materialization: Accountable Game Design Research

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Keywords

game design research, design research

Despite being increasingly embraced as a subject of academic inquiry, game design research has yet to advance consistently or coherently. It suffers something of an identity crisis, caught between epistemologies and disciplines that form only a partial fit to the concerns of design itself (Harrison et al. 2007). The fields in which the majority of academic game design research has taken place to date are Human-Computer Interaction (HCI) and Game Studies. Neither of these fields are primarily design-oriented, leading to discrepancies between academic communities concerning what constitutes rigorous game design research, and as a result, a fractured academic game design research community which lacks robust foundations. If game design research leans on traditions borrowed from other disciplines which have not been conceived of or optimized for researching design, many of the research questions we could be asking or theories we could be forming risk vanishing through the gaps of epistemologies and methodologies (Chiapello 2017; Kultima 2015).

Our current long-term research project tackles these issues from the ground up by prioritizing a *methodological* approach to game design research that begins with the game designer themself. To this end we have developed a rigorous methodology for maintaining a comprehensive documentation of a game's design and development activity via the underlying technology of software version control and have explored some potential analytic and theory-building outcomes of such an approach (Khaled et al. 2018; Khaled and Barr 2023). The documentation method revolves around a game designer (or designers) leveraging the rhythmic and chronological nature of version control – usually for maintaining a precise history of changes to a software project's code or other assets – to instead record design thinking. Most centrally, these reflective moments are captured either by a) writing in a design journal at regular intervals to capture high level design thinking, or b) using moments of *committing* code and other assets to a version control repository to write commit messages that reflect on the relationship between the technical work just performed and the design objectives and questions represented by the project. All this data, from code to assets to design thinking to commit messages, is conveniently stored in a single *repository*.

Crucially, version control provides the magical ingredient of history, meaning that any historical "commit" can be re-examined, including its code, assets, associated design reflections, and a playable build of the game at that precise time and under those conditions – in other words, the design process is *recoverable* (Godin and Zahedi 2014). The method thus provides the ability to draw on material evidence alongside

timestamped design thinking when undertaking any analysis of how game design occurs. Having carried out the method ourselves as well as having analysed the resulting repositories of data, we can assert that the methodology as it stands is of significant value to the designer-research themselves – providing deep and recorded insight into their own process for later scholarly use – and for a third party developing grounded theory about such design work.

Design data capture is thus the foundation of the method, but to make use of that data we also require analysis and theory building. Conscientious design documentation of even a single game case yields a repository of reflective journal entries, commit messages, game builds, code, as well as other regular game design process materials, such as brainstorms, sketches, excel spreadsheets, concept art, etc. Data of these forms lend themselves to analysis via qualitative research approaches. However, since digital game making remains technical even when documented with respect to design, and version control was designed for software maintenance as opposed to design reasoning, we seek to make game design process insights open and accessible to other designers and to both technically minded and non-technical researchers.

To this point, our work has revolved around analysis performed by researchers within the research project itself, leading to questions around the specific *usability* and *accessibility* of both the methodological approach and the data it generates. We have developed one tool for analysis which transforms a version control repository that employs the method into a more user-friendly version, complete with clickable links to playable builds and other affordances for ease-of-use and legibility.

The project is at a key moment where it is imperative to introduce it to a larger academic and practitioner audience to discuss and improve upon the documentation method itself, approaches to data analysis and theory building, and the potential of tools designed to facilitate both. We are particularly eager to present this work and to pose questions to the DiGRA community around the following themes:

1) How legible, straightforward, and practical is the documentation method as it stands for potential uptake in the broader community of academics pursuing game design as a form of research? What suggestions for improvement do they have?
2) What uses and affordances do academics currently studying game design see in the range of data generated by the documentation method? Similarly, what gaps or potential additions might there be?
3) What kinds of additional tools do both groups think might help in the tasks of documentation, analysis, and theory-building? We are particularly curious about ways to manage the sheer scale and diversity of data, perhaps through forms of data visualization.

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