

Making Sense of the Gameplay Design Pattern Collection

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The focus of this paper is to report a study on designing and building a "better" visualization and filtering system for the Gameplay Design Patterns Collection (gameplaydesignpatterns.org). The collection describes itself as the most extensive and up to date collection of gameplay design patterns (Björk and Holopainen, 2004). The Gameplay Design Patterns Collection (<http://gameplaydesignpatterns.org>) contains over 600 patterns, covering many different aspects of game design and also contains over 600 games as references. The patterns are also related to and reference each other in complex ways. Many of the problems with using the pattern collection are caused by its implementation, a mostly unaltered MediaWiki wiki engine.

We discuss usability issues with the Gameplay Design Patterns Collection as a tool to aid in the practice and teaching of game design. We interviewed potential users of the Gameplay Design Patterns (game design teachers, game designers) on what external information they require to perform their occupation. Game designers who were interviewed are not only those who make use of Gameplay Design Patterns in their work, but also many other different approaches to game design. Interviewees were asked to talk about what they look for in a game design tool, as well as asked about any complaints about the current MediaWiki based system, or suggestions for a better system. They also discussed in detail their game design approach.

We also discuss what previous works existed in the visualization of wiki information, especially focusing on those which attempted to visualize the relationships between the information found in wikis.

Participants in the interviews made several complaints: the wiki's search system was not fit for purpose being a keyword search which did not allow for combining filters on searches, which could be quite useful to create more granular searches. Participants also mentioned that, while the wiki's information contains several complex relationships, the wiki did not allow searching the relationships in the data – a feature they may find useful. Another complaint was that the wiki also did not have any inbuilt tools for helping the user visualize inherent relationships and hierarchies in the data and the way that pages are linked caused information inconsistencies. One final common complaint was how it was difficult to find a list of all the patterns, which is arguably the main point of the wiki. Many participants remarked that the content of the wiki was useful, just not easy to get to.

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The outcomes of these interviews were analyzed with an Affinity Diagram (Holtzblatt et al., 2004; Lucero, 2015) to generate a list of user stories, and then a list of tasks that require external information which interviewees perform in their game design related work. These tasks were used to generate requirements for a new visualization and filtering system for the GDP wiki.

We analyzed what the inherent relationships can be found in the information and metadata from the Gameplay Design Patterns wiki. One aim of the research was to find if a noticeable improvement can be made to the understanding of the wiki by changing how the content of the wiki is visualized and filtered. Because of that, it was important to fully review what structures exist in the system, and the relationships between articles on the wiki. We broke these down into the following three relationship types: the page layer, such as hyperlinks between articles on the wiki; the wiki layer, such as wiki page categories; and the pattern layer, which is the relations between patterns on the wiki (such as instantiation, modulation, etc).

These requirements were then used to create a new visualization system called GDPVis - an open-source in-browser single-page application which acts as a visualization and filtering system for information found in the Gameplay Design Patterns wiki (<http://gdpv.is/>). GDPVis incorporates node-link diagrams to display the relationships between patterns, and a node-based visual filtering system allowing for a fine level of control and granularity of the games or pattern collections being displayed. We designed GDPVis in order to tackle many of the common complaints mentioned in the interviews about the original wiki.

A currently ongoing study will evaluate how the intended audience of the wiki (game designers, game design teachers, and game design students) use the new system in comparison to the original wiki. The evaluation consists of user workload as measured by NASA-TLX (Hart and Staveland, 1988), user engagement as measured by User Engagement Scale (O'Brien et al., 2018), and task efficiency as measured by task timing. Additionally, semi-structured interviews will be conducted with the aforementioned audience to provide more nuanced insights into how GDPVis can act as a game design tool or teaching tool. The results of this study will be ready in a follow-up publication.

BIBLIOGRAPHY

- Bjork, S. and Holopainen, J., 2004. *Patterns in game design*. Charles River Media, Inc..
- Hart, S.G. and Staveland, L.E., 1988. Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. In *Advances in psychology* (Vol. 52, pp. 139-183). North-Holland.
- Holtzblatt, K., Wendell, J.B. and Wood, S., 2004. *Rapid contextual design: a how-to guide to key techniques for user-centered design*. Elsevier.
- Lucero, A., 2015, September. Using affinity diagrams to evaluate interactive prototypes. In *IFIP Conference on Human-Computer Interaction* (pp. 231-248). Springer, Cham.
- O'Brien, H.L., Cairns, P. and Hall, M., 2018. A practical approach to measuring user engagement with the refined user engagement scale (UES) and new UES short form. *International Journal of Human-Computer Studies*, 112, pp.28-39.
- Zhang, J. and Nguyen, T., 2005. WebStar: a visualization model for hyperlink structures. *Information processing & management*, 41(4), pp.1003-1018.

Hirsch, C., Grundy, J. and Hosking, J., 2008, October. Thinkbase: A visual semantic wiki. In *Proceedings of the 2007 International Conference on Posters and Demonstrations-Volume 401* (pp. 118-119). CEUR-WS. org.