Creating and Sharing Interactive Narrative Design Knowledge – A Multipronged Approach

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Abstract. When it comes to interactive digital narrative design, there is both a lack of formal training and formal knowledge. Yet, at the same time, the job title of "narrative designer" exists in many places, and many critically and commercially successful interactive digital narratives (IDN) have been realized during the past three decades. This means that interactive narrative design knowledge is mostly private, earned "the hard way" through trial, error, and intuition. The problem with this state of affairs is that design knowledge can be shared only with great difficulty, due to its use of private – and therefore inaccessible – vocabulary. In this paper, we describe a multipronged approach to the creation and sharing of formal design knowledge. We reference our empirically-based method to identify and verify design conventions, outline a formal vocabulary (an ontology), describe an online platform for the collection of convention candidates and associated events to foster collaboration between scholars and practitioners.

Keywords: Interactive narrative design · Design conventions
Design concepts · Ontology · Open online platform
Empirical design knowledge

1 Introduction

When it comes to interactive digital narrative design, there is both a lack of formal training and formal knowledge. Yet, at the same time, the job title of "narrative designer" exists in many places, and many critically and commercially successful interactive digital narratives (IDN) have been realized during the past three decades, as narrative games (e.g. Adventure [1], King's Quest [2], Monkey Island [3], The Last Express [4], Dear Esther [5], Heavy Rain [6], The Walking Dead [7], Firewatch [8] and Oxenfree [9]) and other manifestations, including interactive documentaries (e.g. Fort McMoney [10], Last Highjack Interactive [11]), installation pieces (e.g. Text Rain [12] and others [13]), journalistic 'interactives' (e.g. [14, 15]), VR and AR works [16–18], and Electronic Literature pieces [19].

This discrepancy – between a considerable body of work and the lack of formal resources stems from the fact that interactive narrative design knowledge is mostly

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private, earned "the hard way" through trial, error, and intuition. The problem with this state of affairs is that design knowledge can be shared only with great difficulty, due to its use of private – and therefore usually inaccessible – vocabulary.

In this paper, we detail the implementation of our multipronged approach [20] to address these issues. Individual measures are:

- an empirically-based method to identify and verify design conventions [21–23]
- the development of a formal vocabulary (an ontology), which we hope to establish as widely-used 'lingua franca' for designers and researchers [33]
- an online platform for the collection of convention candidates, which opens our effort to a wider community of practitioners and researchers
- the organization of local events to raise awareness of interactive narrative design amongst practitioners and industry.

2 Verifying Interactive Narrative Design Conventions

2.1 Defining Design Conventions

We have previously described Design Conventions [23]. Essentially, we differentiate two levels: abstract 'design concepts' and concrete design methods – the latter we understand as 'design conventions' which we have defined as "concrete design methods to create conventional comprehension and effects in interactors." [21–23] Design concepts are higher-level categories that describe and overarching function, e.g. "scripting the interactor" (StI) [24] or "delayed consequences" [25].

We also position Design Conventions and Concepts vs. "Design patterns" [26], a concept originating in architecture, that has been applied to describe games design [27, 28]. The issue with patterns is the varying levels of abstraction, which makes comparisons difficult and also means that one collection cannot be used to extend another one [27].

2.2 Verification

To verify a design convention candidate, we use a combined qualitative and quantitative approach, specifically an extended version of Roth's measurement toolbox [28]. Concretely, this means the creation of two nearly identical IDNs that differ only in the use of the convention candidate. The effect of these two different variants on the user experience (A/B testing) are then compared in a post-test-only randomized experimental setup. In the case of a significant positive impact in line with the intention of the convention candidate and a sufficient effect size, the convention is verified for the given context [21–23]. The database also collects replication studies with different artefacts, using the same design conventions, and similar or different samples to further prove validity.

3 A Specific Ontology for IDN Conventions

Previous work was undertaken on ontologies for videogames [29–31] and similar typologies [32]. These efforts were focused on creating general formal descriptions. In contrast, our effort is more focused and dedicated solely on a vocabulary to describe interactive narrative design. In the following section we briefly present a first public version (1.0) (c.f. [33]).

	Top-level category	*Second-level category*/description
1	Proposers	Names of submitters
2	Convention name	Design convention (DC, verified) or candidate (DCC, unverified)
3	Design concept	Conjunction with an overarching category
4	Primary function	Purpose of a convention
5	General description	Further explanation
6	Examples	Artefacts implementing the proposed DC(C)
7	Design intention	high-level design perspective regarding *guidance*, *goal setting*, *challenge*, *reward*, *distraction*
8	Intended effects	Concrete effects on user interaction and user experience in the categories of *agency*, *immersion* and *transformation* [21, 24]
9	Production impact	*Costs* (work hours) and *professional requirements* (e.g. writing skills, modelling/animation skills, programming skills)
10	Manifestation	*Sense level* (visual, auditory, olfactory, gustatory, tactile …); *implementations* (text, graphics, tangible user interface elements), *relationships* (mechanics, rules).
11	Application	*Form* (narrative games, interactive novels, interactive documentaries, interactive installation, …), *genre* (action, thriller, comedy, …), *visual representation* (2D, 3D, 2.5D, independent), *physical representation* (screen-based, installation, mobile, VR, AR, MR, …), *platform* (console, PC, smartphone, tablet, platform independent, …), *user input type* (keyboard, mouse, touch screen, standard gamepad, motion controller, …)
12	Interdependence	Conjunction with other design approaches
13	Cultural dependence	DC(C) requires a specific societal or historical context
14	Research status	References to existing studies that empirically tested/verified DCs

Examples entries can be found here: http://interactivenarrativedesign.org/DC/.

4 Online Platform

In order to enable participation from the community we have created an online platform at http://interactivenarrativedesign.org/DC/ including an online form to submit design convention candidates. As stated earlier [33], we connect a number of goals with this endeavor, in particular, the growth of design knowledge through collaboration between diverse researchers and also practitioners. Therefore, we position the Design Convention database as:

(a) a tool that allows researchers and practitioners to enter design conventions candidates (names of contributors will be clearly visible and we will moderate the entries to assure quality)

(b) an open basis for research that enables researchers to test and verify design convention candidates (and take credit for their work)

(c) a means to improve the ontology through scholarly and practitioner's feedback

(d) a growing resource for interactive narrative designers to look up verified design conventions.

In our view this approach creates all-around benefits for the community: contributions are clearly listed, topics that need more research are easily identified and can be picked up by researchers worldwide, including replication studies.

5 Local Events

Research is in danger to be disconnected from the practice. In order to engage with the practitioners and other interested parties, we plan a series of events. A local conference will serve as a kick-off meeting to discuss early results, industry perspectives and question of collaboration. Then, ongoing meetups will build a community to foster mutual understanding and collaboration, for example on design conventions, but also on the development of programs for formal education.

6 Concluding Remarks

This work documents our ongoing, multipronged research and community-focused effort in creating and sharing interactive narrative design knowledge. This includes the collection of empirically verified design knowledge, a related ontology with the goal of providing a 'lingua franca' for the dialogue between research, education and application, a public online platform in order to enable collaboration and a series of ongoing events to engage a wider community of scholars and practitioners in an effort to move the community forward.

References

1. Crowther, W.: Adventure [Video Game] (1976)
2. Sierra On-Line: King's Quest (1980)

3. Lucasfilm Games: Monkey Island (1990)
4. Smoking Car Productions: The Last Express (1997)
5. The Chinese Room: Dear Esther (2008)
6. Quantic Dream: Heavy Rain [Video game] (2010)
7. Telltale Games: The Walking Dead [Video game] (2012)
8. Campo Santo: Firewatch [Video Game] (2016)
9. Night School Studio: Oxenfree (2016)
10. Dufresne, D.: Fort McMoney. http://www.fortmcmoney.com (2013)
11. Submarine Channel: Last Hijack Interactive. Submarine Channel (2014)
12. Utterback, C., Achituv, R.: Text Rain (1999)
13. Sorensen, V.: Emergent Storytelling: Interactive Transmedia Installation for Digital Cultural Heritage. Presented at the Museums and the Web 2014, Silver Spring, MD (2014)
14. The Financial Times: The Uber Game (2017)
15. Thomson Reuters: Getting Inside Taser (2017)
16. la Peña, de, N.: Project Syria (2014)
17. The Guardian: 6 × 9 (2016). https://www.theguardian.com/world/ng-interactive/2016/apr/27/6x9-a-virtual-experience-of-solitary-confinement
18. Viana, B.S., Nakamura, R.: Immersive Interactive Narratives in Augmented Reality Games. Presented at the Cham (2014)
19. Hayles, N.K., Montfort, N., Rettberg, S., Strickland, S.: Electronic literature collection 1. Electronic Literature Organization (2006)
20. Koenitz, H., Dubbelman, T., Knoller, N., Roth, C.: An integrated and iterative research direction for interactive digital narrative. In: Nack, F., Gordon, Andrew S. (eds.) ICIDS 2016. LNCS, vol. 10045, pp. 51–60. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-48279-8_5
21. Roth, C., Koenitz, H.: Evaluating the user experience of interactive digital narrative. Presented at the 1st International Workshop, New York (2016)
22. Roth, C., Koenitz, H.: Towards creating a body of evidence-based interactive digital narrative design knowledge: approaches and challenges. Presented at the AltMM 2017, Mountain View, 21 August 2017
23. Koenitz, H., Roth, C., Dubbelman, T., Knoller, N.: What is a convention in interactive narrative design? In: Nunes, N., Oakley, I., Nisi, V. (eds.) ICIDS 2017. LNCS, vol. 10690, pp. 295–298. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-71027-3_29
24. Murray, J.H.: Hamlet on the Holodeck: The Future of Narrative in Cyberspace. Free Press, New York (1997)
25. Koenitz, H.: Design approaches for interactive digital narrative. In: Schoenau-Fog, H., Bruni, L.E., Louchart, S., Baceviciute, S. (eds.) ICIDS 2015. LNCS, vol. 9445, pp. 50–57. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-27036-4_5
26. Alexander, C., Ishikawa, S., Silverstein, M.: A Pattern Language. Oxford University Press, Oxford (1977)
27. Koenitz, H., Roth, C., Knoller, N., Dubbelman, T.: Clementine Will Remember That – Methods to establish design conventions for video game narrative. Presented at the Proceedings of the 2018 DiGRA International Conference The Game is the Message, Torino, Italy, July 2018
28. Roth, C., Vorderer, P., Klimmt, C., Vermeulen, I.: Measuring the user experience in narrative-rich games: towards a concept-based assessment for interactive stories. Entertainment Interfaces (2010)
29. Zagal, J.P., Mateas, M., Fernández-Vara, C., Hochhalter, B., Lichti, N.: Towards an ontological language for game analysis. Presented at the DIGRA Conference 2005 (2005)

30. Zagal, J.P., Bruckman, A.: The game ontology project: supporting learning while contributing authentically to game studies. Presented at the Proceedings of the 8th international conference on International conference for the learning sciences (2008)
31. Karhulahti, V.-M.: Fiction puzzle: storiable challenge in pragmatist videogame aesthetics. Philos. Technol. **27**, 201–220 (2014)
32. Elverdam, C., Aarseth, E.J.: Game classification and game design: construction through critical analysis. Games Cult. **2**, 3–22 (2007)
33. Koenitz, H., Roth, C., Dubbelman, T.: Engaging the community in collecting interactive narrative design conventions. Presented at ChiPlay 2018, Melbourne (2018). https://doi.org/10.1145/3270316.3271533