

The Encyclopedia Project for Interactive Digital Narratives¹

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Abstract The design and study of interactive digital narratives (IDN) is a multidisciplinary field. Scholars and practitioners concerned with the topic originate from fields such as literary studies, computer sciences, games studies, media studies, fine art, filmmaking. Consequently, they not only bring a wealth of productive perspectives to the table, but also differences in terminology. This fact alone can be a cause for confusion, yet it is further amplified by diverging meanings of the same term in different disciplinary contexts. In the field, there is a long-standing issue, we propose concrete steps towards the development of a shared vocabulary in the form of an online encyclopedia, taking inspiration from the Living Handbook of Narratology and the Stanford Encyclopedia of Philosophy. This work is developed in the INDCOR EU COST action, a network currently encompassing 160 members from 37 countries.

Keywords: Interactive Digital Narrative · Interactive Storytelling · Shared Vocabulary · · Multidisciplinarity · Online Encyclopedia ·

1 Addressing the Lack of a Shared Vocabulary for IDN

The lack of a shared vocabulary is a longstanding issue in the field of interactive digital narratives (IDN) (Koenitz, Ferri, and Sezen 2009; Koenitz et al. 2013; Koenitz 2014; Koenitz 2016; Thue and

¹ A longer version of this paper has been published as an INDCOR white paper on the pre-print server arxiv <https://arxiv.org/abs/2010.10135>:

Carstensdottir 2018). The root of this problem is the fact that scholars and practitioners concerned with the topic of interactive narrative originate in a number of different fields, including literature studies, film studies, computer sciences (both from an Artificial Intelligence (AI) and Human Computer Interaction (HCI) perspective), media studies, creative practices and many more. All of these fields have associated specific vocabulary. The issue is further aggravated by the fact that many common terms used in Interactive Digital Narrative research and practice – such as “narrative”, “plot” or “story” – have both a common meaning in everyday conversation, and also specific ones in scholarly and professional contexts. The ‘story’ of a journalist is not exactly the same as the ‘story’ of a film director and what is exactly meant in each case is only fully accessible to practitioners in the respective fields. In a recent article Koenitz and Eladhari compared this status to the biblical metaphor of the “Babylonian confusion” (2019).

In this paper, we propose to address the issue through the creation of a “living encyclopedia of IDN vocabulary” based on an overarching analytical framework (SPP model) and associated taxonomy. We detail the process for the creation and continued development of such a resource within INDCOR (Interactive Narrative Design for COMplexity Representations) EU COST network³ and also invite the community to participate in the development of this central aspect for the fledgling field of IDN research and practice.

2 Foundational Considerations for a Shared Vocabulary

In order to enable such a shared understanding, an overarching analytical perspective is necessary. This is an insight gained by our own experience in the INDCOR EU COST network. The setup of workgroups was a bottom-up approach developed by the expert community at the first meeting in Brussels. As work progressed, a long list of terms to be defined in a shared vocabulary was quickly produced, but subsequent discussions made clear that a consensus on how to connect different definitions was elusive. Consequently, we identified the need of an overarching abstraction to guide our work on a shared vocabulary of IDN. Without it, there was a manifest risk that a shared vocabulary would replicate the existing Babylonian confusion and thus miss its central aim. In ongoing work and subsequent meetings in Vienna and online, the SPP (System Process Product) model (Koenitz 2015) was the one singled out across workgroups that could function as a starting point for connecting the four pillars that are expressed as workgroups in INDCOR.

³ EU COST Action 18230 INDCOR, <https://indcor.eu>

2.1 An Overarching Analytical Perspective: the SPP Model

The SPP model is a media-specific perspective that identifies three broad categories for the analysis of IDN artefacts, reflecting its different stages: *system* – the digital artifact, *process* – the interactive experience of a system, and *product* – the result of the experience, either in the form of a recording or as a retelling (Eladhari 2018) to others (figure 1).

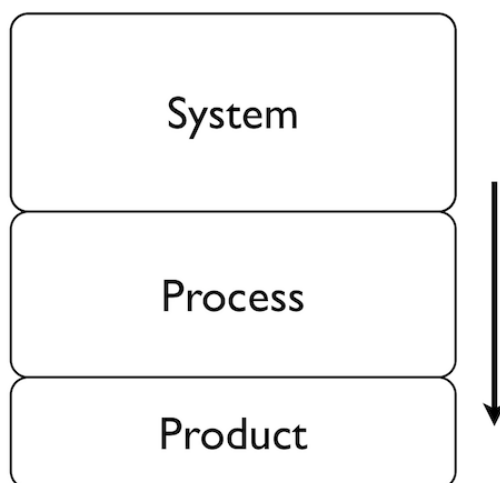


Figure 1. SPP model (Koenitz 2015)

The SPP model takes the systemic, dynamic character of IDN works as its central characteristic, building on a foundation laid by cybernetics (Wiener 1948), and cybernetic art theory (Ascott 1964; Ascott 1968), as well as earlier perspectives on interactive forms of narration (Laurel 1986; Jennings 1996; Murray 1997; Montfort 2005; Murray 2011). In order to understand the specific aspects of IDN and avoid limitations inherent in adapted perspectives⁴, the SPP model does not rely on underlying models derived from the classical formal study of literature and the cinema in narratology. Instead, it acknowledges the ‘cognitive turn’ in narratology – a perspective that understands narrative not as a property of certain types of artefacts, but as a cognitive function, a “frame for constructing, communicating, and reconstructing mentally projected worlds” (Herman 2002). This perspective opens up a space for novel kinds of narrative manifestations – as in principle any artefact can be considered a narrative as long as it triggers the cognitive frame of narrative. In other words: an IDN work does not need to be similar to the literary novel or the movie to be considered a narrative. This view creates opportunities for both theoretical development and novel practices.

⁴ Cf. N. Katherine Hayles’ call for a “media-specific analysis” of digital forms of narration (Hayles 2002) and Hausken’s warning of “media blindness” (2004).

On this basis, the SPP model is concerned with defining aspects of IDN *systems*, their *processes* and resulting *products* and organizes related concepts and design aspects accordingly. For instance, *system* contains the *protostory*, the sum of all potential narratives that can be instantiated with a given artefact (figure 2). Further aspects related to an IDN work (*narrative design*, *user interface*, *assets*, *environment definitions/rule systems*) are subcategories of *protostory*. This would mean for example that an AI engine is described as a *rule system* within the protostory and its particular implementation as a part of the *narrative design*. Conversely, concepts, practices and examples related to the manner in which an IDN is presented to and experienced by an audience (i.e. visual presentation, interaction, feedback) would be represented within the category of *process*. Finally, *product* describes the output of a *process*, either as a recording (objective product) or as re-telling (Eladhari 2018) (subjective product).

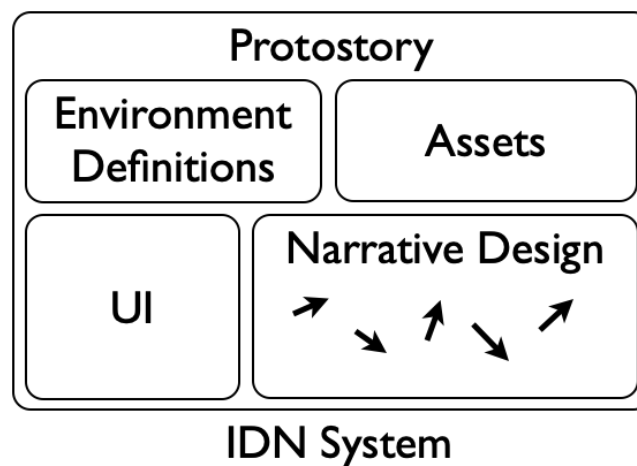


Figure 2. Protostory and its elements (Koenitz 2015)

For the shared vocabulary project, the SPP model is used as a foundational analytical framework to connect central concepts of IDN in terms of design and development, theory building, societal context and evaluation. This choice is pragmatic, based on several advantages:

- SPP emphasizes the specificity of this dynamic form thus providing a clear distinction from earlier, fixed forms of narrative such as the printed novel or film and associated vocabulary and thus avoids the pitfalls of re-defining existing terminology;
- The SPP model takes the systemic nature of IDN artifacts as foundational, building on a solid lineage of cybernetics, cybernetic art and system theory;
- The SPP model continues efforts by scholars such as Pamela Jennings, Brenda Laurel, Janet Murray and Nick Montfort in understanding the specific aspects of Interactive Digital Narratives;

- The SPP model features an inclusive view that acknowledges the wide variety of different forms of IDN, including hypertexts, journalistic interactives, narrative-focused video games, interactive documentaries, installation pieces, and AR/VR work as well as emerging forms;
- The SPP model provides a high-level model of IDN works and their relationship with their audiences that is open both to extensions and further lower-level specification and thus the SPP model can serve as a central element in an IDN taxonomy.

Any choice of overarching analytical perspective is open to criticism and will be controversial to some researchers and/or professionals, yet there is the simple fact that a starting point must be chosen and given the above-mentioned advantages, the SPP model provides a solid foundation. A shared vocabulary does not mean that all differences in meaning or historical context would simply disappear, or that scholarly dispute all of a sudden ends, but that a coordinate system would be established against which extensions and alternative views can be discussed and understood. Conversely, from this clear vantage point, explicit connections can be drawn which will enable scholars to better understand each other and productively work together. Most importantly, since we aim to make the concept of a shared vocabulary available for the whole community of researchers and designers, it can serve as a hub for knowledge exchange and an important step in building a field accessible also to newcomers and related disciplines.

3 A Taxonomy for IDN – Extending the SPP Model

The SPP model is concerned with analyzing the IDN artifact, which means it does neither explicitly cover the conditions leading to a work (Ideation) nor its creation process (Authoring). Conversely, it also does not concern itself with societal effects of the work in question or on other works (Critical discourse). As a broad framework, it also does not provide the granularity necessary for an encyclopedia. Consequently, the authors of this paper have developed a taxonomy for interactive digital narrative on the basis of the SPP model with the top-level categories of *authoring*, *artefact* and *critical discourse* (table 1).

The taxonomy relates authors' contributions to an overall structure. For example, *transformation* is categorized as an aesthetic quality and thus an aim during the authoring process (**Authoring** > Ideation > Content > Aesthetic qualities > Transformation) and an element of the experience of successful design (**Artefact** > Process > Experience > Aesthetic > Transformation)

We understand this taxonomy as a first effort (version 1.0) open to changes and amendments as the result of discussions and developments in INDCOR as well as in the research and practice communities at large.

The taxonomy itself represents the core of the shared vocabulary and as such provides a foundation which supports the community-driven effort in developing a more extensive collection of terminology. This explicitly means that further terms should be proposed and will be integrated to grow the vocabulary. The focus here will be on concepts not already well-defined in existing collections, e.g. *The Living Handbook of Narratology* (Hühn, 2015)

3.1 IDN Taxonomy V 1.0

1. Authoring

1.1. Ideation

1.1.1. Affordances

1.1.1.1. Procedural

1.1.1.2. Participatory

1.1.1.3. Spatial

1.1.1.4. Encyclopedic

1.1.2. Audience

1.1.2.1. Social

1.1.2.2. Private

1.1.2.3. Expectations

1.1.3. Content

1.1.3.1. Complexity

1.1.3.1.1. Topic

1.1.3.1.2. Addressee

1.1.3.1.2.1. Social

1.1.3.1.2.2. Private

1.1.3.2. Prior Narratives

1.1.3.3. Material

1.1.3.3.1. Fiction

1.1.3.3.2. Non-fiction

1.1.3.4. Form

1.1.3.4.1. Interactive Documentary

1.1.3.4.2. Video game

1.1.3.4.3. Hypertext fiction

1.1.3.4.4. Location-based

1.1.3.4.5. AR/VR

1.1.3.4.6. Mixed

1.1.3.5. Aesthetic qualities

1.1.3.5.1. Immersion

1.1.3.5.2. Agency

1.1.3.5.3. Transformation

1.1.3.6. Meaning Making

1.1.3.6.1. Mental processes

1.1.3.6.1.1. Hermeneutic circle

1.1.3.6.1.2. Narrative cognition

1.1.3.6.1.3. Cognitive reduction

1.1.3.6.1.4. Embodied cognition

1.1.3.6.2. Rhetoric

1.1.3.6.3. Interface

1.1.3.6.3.1. Interaction Metaphor

1.1.3.6.4. Prediction of Audience reaction

1.1.3.6.4.1. Feedback

1.2. System Implementation

1.2.1. Protostory

1.2.1.1. Asset creation

1.2.1.1.1. Characters

1.2.1.1.2. Props

1.2.1.2. Environment building

1.2.1.2.1. Geographic

1.2.1.2.1.1. Landscapes

1.2.1.2.1.2. Buildings

1.2.1.2.2. Rule Systems

1.2.1.2.2.1. Physics Systems

1.2.1.2.2.2. Societal Rules

1.2.1.3. UI/Interface building

1.2.1.4. Interactive Narrative Designing

1.2.1.4.1. Combinatorics

1.2.1.4.2. Structure

1.2.1.4.2.1. Events

1.2.1.4.2.2. Narrative Vectors

1.2.1.4.3. Experience Schema

1.2.1.4.3.1. Narrative Cognition

1.2.1.4.3.2. Narrative Experience

1.2.1.4.3.3. User representation

1.2.1.4.3.3.1. Memory structure

1.2.1.4.3.3.2. Preferences

1.2.1.4.4. Existing authoring tools

1.2.1.4.4.1. Aurora NWN

1.2.1.4.4.2. GURPS

1.2.1.4.4.3. ASAPS

1.2.1.4.4.4. Scenejo

1.2.1.4.4.5. IDTension

1.2.1.5. Intents

1.2.1.5.1. Rhetoric

1.2.1.5.2. Aesthetic

1.3. Creator

1.3.1. Industry roles

1.3.1.1. Interactive Narrative Designer

1.3.1.2. Game Writer

1.3.1.3. Creative Director

2. Artefact

2.1. System

2.1.1. Protostory

2.1.1.1. Assets

2.1.1.1.1. Characters

2.1.1.1.2. Props

2.1.1.2. Interactive Narrative Design

2.1.1.2.1. Narrative Mechanics

2.1.1.2.2. Narrative Vectors

2.1.1.2.3. Narrative Structure

2.1.1.3. Environment

2.1.1.3.1. Geographic

2.1.1.3.1.1. Landscapes

2.1.1.3.1.2. Buildings

2.1.1.3.2. Rule Systems

2.1.1.3.2.1. Physics Systems

2.1.1.3.2.2. Societal Rules

2.1.1.3.3. UI/Interface

2.2. Process

2.2.1. Participation

2.2.1.1. Interaction

2.2.1.1.1. Active/Performance

2.2.1.1.2. Passive/Sensoric

2.2.1.2. Sense Making

2.2.1.2.1. Double Hermeneutic circle

2.2.1.2.1.1. Reflection

2.2.1.2.1.2. Action

2.2.1.2.1.2.1. Planning

2.2.1.2.1.2.2. Execution

2.2.1.3. Experience

2.2.1.3.1. Aesthetic

2.2.1.3.1.1.1. Immersion

2.2.1.3.1.1.2. Agency

2.2.1.3.1.1.3. Transformation

2.2.1.3.2. Rhetoric

2.3. Product

2.3.1. Objective (Recoding)

2.3.1.1. Interaction analysis

2.3.1.2. Attention analysis

2.3.1.3. Pace control

2.3.2. Subjective (Retelling)

2.3.2.1. Experience Model

2.3.2.1.1. Narrative cognition

2.3.2.1.2. Cognitive reduction

2.3.2.1.3. Embodied cognition

2.3.2.2. Structure Inference

2.3.2.3. Updating episodic memory

2.3.2.4. Updating perception memory

3. Critical Discourse

3.1. Inclusivity

3.1.1. Intersectionality

3.2. Society

3.2.1. Audience

3.3. Effect

3.3.1. Comparison Intent/Experience

3.4. Reflective Analysis

3.4.1. Methods

4 A (Living) Encyclopedia for IDN

With the foundational staxonomy in place, the question is how to make the project accessible and enable community involvement and further development. Examples for accessible shared vocabularies exist in the form of online encyclopedias and this is the model we have decided to follow. Arguably the most successful example for general knowledge is Wikipedia (2020b), the free online encyclopedia. In the scholarly realm, two particularly successful examples are the *Living Handbook of Narratology* (Hühn 2015) and the *Stanford Encyclopedia of Philosophy* (2020a). Both Wikipedia and the scholarly resources are viable models. We aim to follow the latter model for a variety of reasons and will be developing an online encyclopedia for IDN research and practice.

An argument for creating an encyclopedia rather than a shared Wikipedia is that, based on the examples above, these endeavors have proven more successful in terms of creating a complete and high-quality curated result. The reasons for this outcome are likely multifold, but we speculate that an encyclopedia entry is more rewarding for authors to participate in, since their efforts are clearly recognizable and properly credited. As for its audience, an encyclopedia appears to be more curated in both its individual content, and as a whole, since an encyclopedia by its nature promises to provide a more comprehensive view of a given topic, rather than to rely on seemingly random selections and emphasis determined by wiki-authors' preferences. This being said, the two methods are not mutually exclusive. A Wikipedia site could likely serve well as a pre-stage in the production of the Encyclopedia of IDN the way we envision it.

4.1 Editorial Procedures

Taking inspiration from the two examples of the *Living Handbook of Narratology* (Hühn 2015) and the *Stanford Encyclopedia of Philosophy* (2020a), we see a strong editorial board as central to the success of this undertaking, providing guidance and assuring academic excellence. Conversely, we consider community engagement as crucial in making this undertaking a success,

which means to aim at a good balance of both aspects. Therefore, the IDN encyclopedia will be composed of articles written by authors from the community which have undergone a thorough peer-review process. Articles will be published based on their academic rigor and the relevance of their contribution to the field.

The group of INDCOR chairs (nine scholars originating in different disciplines and at different career stages⁵) will act as the initial editorial board and section editors, soliciting authors from inside the project and the community at large for encyclopedia entries. At the time of writing, in May 2021, the INDCOR action consists of more than 160 scholarly experts and professionals concerned with IDN complexity representations. INDCOR members would act as the initial group of reviewers, but will be inviting additional experts from the field to assure a diversity of perspectives and a high level of quality content also for topics outside their core expertise. The aim is to make the encyclopedia a high-quality resource where each entry is recognized as a publication in its own right and thus writing for the encyclopedia is a rewarding undertaking for contributors.

5 Conclusion and Future Work

In this paper, we have identified the lack of a shared vocabulary as a central issue for the field of Interactive Digital Narrative in general. We further identified the need for an overarching analytical perspective, selected the SPP model in this capacity and have proposed to address this issue through a communal expert-authored and peer-reviewed encyclopedia. Inspired by the successful examples of the Living Handbook of Narratology and the Stanford Encyclopedia of Philosophy, we propose a structure for such an effort and introduce a taxonomy as a starting point to gather definitions of concepts central to IDN and useful across perspectives for scholars and practitioners in the field, taking into account four lenses: design and development, conceptualization and theory, evaluation, and societal context. We invite the research community to partake in the endeavor of creating a multifaceted, living encyclopedia providing a shared vocabulary for IDN.

⁵ Hartmut Koenitz, Mirjam Eladhari, Frank Nack, Agnes Bakk, Jose Manuel Noguera, Andrew Perkis, Sandy Louchart, Elisa Mekler, Lissa Holloway-Attaway

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