42.3 Design for Narrative Change. A Pedagogical Model for Interactive Digital Narratives

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Abstract

Narratives mirror shared interpretations of the world. Still, dominant narratives prevail, pushing non-hegemonic narratives in the corner. A change in the creation, interaction and distribution of narratives can support the design of counter-narratives able to feed social change. Interactive Digital Narrative (IDN) can be considered an emerging experimental context in which designers, researchers and practitioners from various domains operate to develop story-based content addressing relevant social or societal issues. The IDN social constructivist role in encouraging or influencing individuals and collectivities towards social change is a relevant design issue especially from an educational perspective. Specifically, it features methodologies and praxis not yet systematised, in need of exploration and formalisation. Recognising the contribution of an approach combining transdisciplinary methods and tools, the article presents a pedagogical model for designing IDNs as complex interactive systems able to impact culture and society based on empirical study from a design course in the higher education context. Composed of theoretical and operational frameworks, the pedagogical model orients the multilayered design process for building engaging, interactive narrative artefacts systematising and operationalising knowledge from the domains of Communication for Social Change, storytelling and IDN in an iterative design process.

Keywords

design framework, Interactive Digital Narratives, Narrative Change, pedagogical model, social change

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Interactive Digital Narratives for Social Change

Designers can play a central role in promoting social change, by contributing to raising awareness on values and beliefs, as well as by questioning hegemonic beliefs rooted in people's mindset, nurturing understanding of cross-sector societal issues and addressing ill-defined or wicked problems (Buchanan 1992). At the intersection of narratives and interactive media, Interactive Digital Narratives (IDNs) as drivers for social change have become a relevant topic to be further explored in several fields. Being designed to put users in the shoes of interpretative agents that negotiate their view and knowledge, they act as models of sensemaking. This reasoning is aligned with a growing body of research supporting the idea that digital media as interactive narratives and games can go beyond being a source of entertainment, contributing to education and social innovation by incepting behavioural change (Couldry 2008). When addressing relevant social topics, a change in the narrative can spread counter-narratives, emerging or cultivated, that challenge the dominant one by portraying a divergent view of an issue. As such, it contributes to making societies more inclusive, innovative and reflective (Svane 2020). In the light of this, IDN for social change emerges as a major topic at the centre of significant research and experimentation, rooted in different epistemologies and investigated by researchers and practitioners from various disciplines (Dubbelman et al. 2018; Lueg & Wolff Lundholt 2020). Exploring the possibilities of including IDNs in communication ecosystems becomes fundamental, especially in terms of design.

The evolving media landscape caused a progressive collapse of the classic narrative forms. New forms of storytelling are encouraged and boosted, exploiting the unceasing technological advances while reading or even stirring users' behaviours and consumption patterns, as that of quality interaction, engagement and participation. Users themselves are empowered to a new, dynamic and active role: interacting and shaping stories. This evolution has been reshaping the communication and interaction design fields, together with the mediatisation and its instances. It triggered a major digital and cultural transformation that made it urgent to include the topic into the design curricula (Murray 1995; Koenitz *et al.* 2019).

The state-of-the-art on IDN educational programmes shows prevalent attention on integrating knowledge on game-design-related topics and conventions with narrative aspects, exploring issues such as authoring tools (Sylla & Gil 2020; Green et al. 2021), drama management (Szilas & Richle 2013) and emergent narrative (Louchart et al. 2015). Main investigations specifically concern general design processes, several overarching design heuristics, tools and strategies for implementation (Koenitz 2015, 2016), showing the need to go beyond theoretical frameworks towards operational ones and comprehensive pedagogies. Given this premise, this contribution is situated in the field of design for social change, looking at IDNs in design education as promising means for activating Narrative Change, and vehicles to stimulate awareness, sensibilisation and educational equity towards more inclusive perspectives (Couldry 2008; Lambert 2013).

Against the Hegemonic Discourse: An Ecosystemic Perspective

More than pervasively penetrating our consciousness, stories contribute to constructing our reality, shaping memories, knowledge and opinions (Bruner 1991). Building on this, the scientific community has been exploring the conceptualisation of storytelling for social change (Winskell & Enger 2014; Zingaro 2017) as a way

to provoke detachment from hegemonic discourse towards Narrative Change. Storytelling allows to transcend existing polarisations and provide new ways to express identity and make sense of the world, questioning structural binarity and pre-established and constructed structures.

In a scenario that clearly recognises the role of media and mediatisation in informing and guiding societal constructions of reality (Schulz 2004), new forms of narratives that challenge the hegemonic discourse entered the field of educational pedagogy and research (Milner & Howard 2013; Miller et al. 2020), asking for systematisation and operationalisation of transdisciplinary knowledge, and formalisations of processes and practices. Designers can play a central role in promoting social change, by contributing to raising awareness on values and beliefs, as well as by questioning hegemonic beliefs rooted in people's mindset. Among the needs, that of nurturing understanding of cross-sector societal issues at stake today, addressing the so-called illdefined, wicked problems (Buchanan 1992).

Designing IDN emerges as a powerful way to stimulate reflection, requiring designers to understand, frame and reframe knowledge, while gaining new awareness through a multi-level learning that ranges from the scale of contents to that of the ecosystem, and finally to the design practice.

Recognising the highly transdisciplinary nature of a domain where knowledge from various fields converges, we developed a pedagogical model for designing IDNs as complex artefacts and systems that occur at the encounter of social change, creativity and learning. IDNs that strive to impact culture and society by tackling relevant societal or social issues through engaging and meaningful experiences. Within this framework, IDN possesses the capacity to support and trigger Narrative Change by engaging audiences in becoming active participants, challenging dominant discourses, and fostering critical engagement, ultimately shaping and transforming the narratives within the digital media landscape.

Research Setting

The design of IDNs is addressed through an 'authentic learning approach' (Herrington *et al.* 2014). We designed the course Interactive Transmedia Narratives for New Media (Complex Artefacts and System Design Studio), challenging the students with ill-defined real-world problems and realistic learning assignments, letting them act like authentic practitioners (Herrington *et al.* 2014).

Therefore, the course devoted to develop IDNs critically addressing social issues revolves around three pillars:

- 1. Complex interactive narrative artefacts as a model of enquiry (Clandinin 2006; Trahar 2011);
- 2. Critical reflection and generativity as a model combining the use of storytelling and storyworld building for research and pedagogy (Barrett 2006; Robin 2006; Psomos & Kordaki 2012; Steinemann *et al.* 2017); and
- 3. Action research and reflective/transformative action (Mezirow 2000) as educational praxis on relevant topics.

From AY. 2016/2017, the study has taken place within the higher education framework as a 12-ECT design studio involving each year from 50 to 70 students enrolled in the MScs (i) Communication Design, and (ii) Digital and Interaction Design, School of Design, Politecnico di Milano, working in groups of five to seven students. In this setting, fundamentals are introduced and followed by direct

experimentation, supported by tools for designing narrative-based projects and hands-on activities to promote clear understanding.

Study Methodology

Employing the reflective practice of action research (Costello 2011) and research through design (Frayling 1993; Frankel & Racine 2010), we established a long-term study that investigates the design of IDNs as complex and powerful communication artefacts and systems able to stimulate reflection on relevant social matters. Recalling the concept of constructing design research (Koskinen *et al.* 2011), the experience of designing and prototyping such artefacts showed the need not yet fully answered to bridge theory and practice. In response to this, we developed a pedagogical model for teaching the IDN discipline.

The effectiveness of the design process and the tools developed is assessed conducting ethnographic analysis throughout seven course editions, and triangulating knowledge gained through mixed methods: participant observation, interviews with students and course evaluation (focused on assessing teaching activities, course structure, learning outcomes). The data collected have been constantly translated into know-how, nurturing progressive implementation and finetuning of various elements of the course: learning outcomes, assessments and evaluation methods, and learning activities (Bloom *et al.* 1956; Biggs & Tang 2011; Harmon & Chatterton 2018).

An IDN Pedagogical Model

The study informed the construction of a pedagogical model (Figure 1) intersecting a theoretical and an operational framework. The first intertwines knowledge from the three domains of Communication for Social Change (CSC), Storytelling and IDNs. The second describes the iterative design process for building IDNs for Narrative Change, operationalising theoretical fundamentals from the aforementioned domains while introducing design tools.

Theoretical Framework

The design of IDNs for Narrative Change is situated at the intersection of the aforementioned three domains, requiring a body of transdisciplinary knowledge. The theoretical framework answers this need systematising established vertical knowledge pertaining to such domains in a coherent corpus of foundational resources, from which theoretical fundamentals are derived and framed as contents. Each domain is addressed according to three learning modes: (1) frontal lectures, (2) discussion and critique and (3) design studio sessions; each is associated with contents, methods and tools (Figure 2).

In the following, we discuss the three domains of reference as separate. However, the line between the disciplines is often blurred and indistinguishable, it is inevitably the cross-reference of one or more domains in exploring the other.

Domain 1: Communication for Social Change

Communication for Social Change is a field of academic inquiry leveraging theoretical inputs from communication studies, media studies and social science to promote more effective communication to empower people's lives and drive social

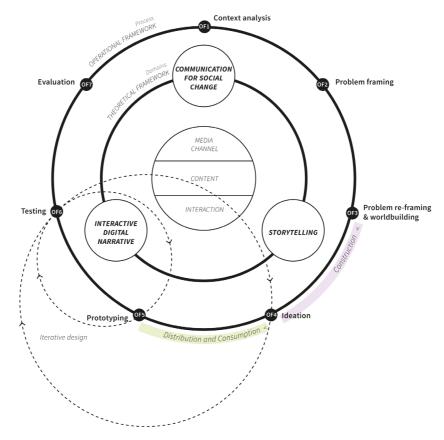


Figure 1 Interactive Digital Narrative Pedagogical Model.

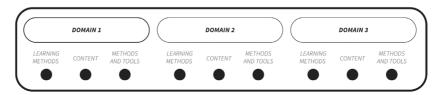


Figure 2
Theoretical Framework High-Level Structure.

change. It examines processes, methods, techniques and media channels for developing effective story-based projects at the intersection of theory and praxis. In doing so, CSC offers a field of action to different actors: NGOs, non-profit organisations, foundations, social enterprises, but also activists willing to participate in political and social life, promoting real change.

Throughout our study, we started from the idea that storytelling as a form of dramatic and imaginative activity can foster processes of change for audiences. Through stories audiences can observe representations of reality, which once elaborated can ignite Narrative Change. Therefore, igniting a change starts by affecting established mindframes in the liminal space (Turner 1982) that the storytelling

opens. The design, development and distribution of narrative artefacts can create new frames of reference that challenge established imaginary. This process occurs at two complementary levels: primarily those who design them, and secondly, those who consume and interpret them. Within the design process, factual and fictional storytelling are used as an interpretive and expressive practice using dramatisation and representation to communicate values and promote virtuous habits. Concepts and principles coming from sociology and psychology are leveraged for building engaging experiences: the principle of interpretation as an individual practice of self-reflection (Kelly 1955); the concept of keying (Goffman 1974), using rhetoric and representation systems that cover specific topics without making explicit reference to them; and the idea that people build their behaviours between imitation and elaboration, repetition and interpretation (Turner 1985).

Fundamental premise to the design process is that our understanding of reality is a set of personal constructs (Kelly 1955), and interpretation unfolds as an individual practice implying self-reflection. According to the constructivist paradigm, such patterns are structured to support the coexistence of alternative interpretations of reality. Such theories rely on the linkage among a layered structure of meanings across frameworks (Goffman 1974): the primary framework of reality; the secondary framework of the storytelling that creates a fictional space separated from reality, where the user is immersed and engaged operating a suspension of disbelief (Coleridge 1817); and the user's mindframes as the set of schemata through which people structure and make sense of the world (Goffman 1974; Herman 1997). The interplay among these overlapping layers leads to elaborate and make sense of representations—from the fictional world to its characters, events and actions. To achieve a persuasive impact circumventing the raising of psychological defences which may reduce users' potential engagement with the interactive artefact and understanding of the topic, specific embedded design approaches are put in place (Kaufman & Flanagan 2015). Such an approach provides the opportunity to keep a receptive mindset while exploring civic, social, political, moral or ethical issues (Mariani 2016).

Notions from narrativity, game studies and the above-mentioned sociological theories are jointly put at use, starting from being engaged in a fictional world separated from reality to building effective communication strategies. Indulging in a play of make-believe is a powerful way to turn the user's attention to the fictional world as a secondary world (Wolf 2012), reducing the attention on the primary world (Mariani 2020). In the frame of the secondary world, where the fictitious makes sense, possibilities of any kind can be explored. The immersion in the fictional world (Murray 1995; Frasca 2001; Ryan 2001) as protected spaces enables a process of abstraction from ordinary schemata of interpretation and frames, resulting in a condition of openness (Mariani 2016). In this space, the user can vicariously wear someone else's shoes, playing a different role. In designing with a communication purpose, significant advantages can be taken because specific perspectives on relevant issues can be activated through engaging experiences. Hence, the CSC domain builds on how storytelling and immersion into fictional worlds favour experimentation of other roles, often prompting understanding (Figure 3).

Domain 2: Storytelling

Stories can serve a prominent role in establishing and reinforcing social norms (Roche & Sadowsky 2003), contributing to conveying and supporting behaviours to be promoted. Accordingly, when narratives are used in communication design, they



Figure 3
Theoretical Framework Applied to the Communication for Social Change Domain.

need to be carefully and meaningfully built, not simply wrapped around to make something fascinating and attractive.

Recognising the role of communication designers in leading the change, we need to provide competencies and skills to design story-based content able to have a real impact on beliefs and behaviours. The discourse articulates from fundamental knowledge on narratology as advanced by Russian formalists (Propp 1968), American structuralists (Chatman 1978) and French structuralists (Todorov 1966, 1975; Prince 1982; Greimas 1983; Genette 1988), reaching out to more contemporary point of view such as storytelling across media and narrativity (Sternberg 2001; Ryan 2008).

Concerning the role of key rhetorical tropes which nurture immersion (Murray 1997), identification and/or projection (Shaw 2010), especially relevant is the function of fictional worlds or storyworlds (Pavel 1986; Ryan 1991; Wolff et al. 2007; Wolf 2012). Stories are set in fictional worlds as limited structured representation and reduction of reality (Geertz 1973; Goffman 1974), or better, parts of it. From a post-poststructuralist perspective (Doležel 2019), they demand a conscious activity of worldbuilding: this activates a negotiation of meaning that designers and users have to undertake to translate values, meanings and information included into fictional worlds, its storyline(s) and narrative elements (Figure 4). As such, fictional worlds are able to open up reflections.

Domain 3: Interactive Digital Narrative

Going beyond entertainment, IDNs can be designed to strengthen their bonds with audiences while being spaces where to explore, discuss and challenge relevant social topics (Steinemann *et al.* 2017). This implies that the communication strategy setting the interplay between the various elements of IDNs has to be accurately addressed in the design process, both in terms of meanings to be embedded, and of agency given to users. Every element concurs in opening up the possibility to trigger Narrative Change towards social change.

IDNs as a narrative form exploit in conjunction the possibilities of digital technology to develop compelling stories at relatively inexpensive and decreasing costs, and of digital media to reach high levels of exposition. Therefore, although IDN has

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- Main theories on narratology, storytelling across media, and narrativity
- Identification of storyworlds as starting point for the development of interactive narrative artefacts
- Introduction to world building practice: strategies for conveying values and meanings

Literature review



Collection of case studies coming from:
 transmedia design context (building)

- transmedia design context (building fictional worlds as part of a design process involving users in constructing new knowledge)
- game studies/game design field (building spaces of experimentation wherein users explore points of view)
- social media fiction field (building fictional worlds that link and intertwine individual fragments, connecting personal stories)

Individual fragments, connecting personal stories)
 Implication of building IDN for specific media and critique of existing works

Case studies analysis; Peer assessment



STUDIO

· Narrative interpretation of the topic and its constitutive elements

- Worldbuilding: building the storyworld starting from values, characters creations, and storyline(s) definition
- Interim presentation 1 "Storyworld": presentation, critical analysis and assessment of topic, communication goals, values, and metaphors translated into a storyworld.
- Assignment 1 "Character": presentation of a fictional character designed starting from the storyworld and its values.

Worldbuilding; Character creation; Story definition

Figure 4

Theoretical Framework Applied to the Storytelling Domain.

initially been investigated through an artistic perspective, it is now commonly recognised as an established topic of scholarly inquiry.

IDN aims at contributing to social impact by encouraging change through their engaging and immersive experiences (Steinemann *et al.* 2017). Recalling their affordances and mechanics, IDNs are set in fictional worlds with a finite number of possibilities in the form of interrelated events, characters, actions and places driving the story (Ryan 2004). Together with the understanding of the story, the process of unfolding and interpreting meanings entailed in the fictional world and its elements can be regarded as one of the modalities through which the user participates in understanding the significance of the experience. As such, the design of each of these elements and their interplay requires to be carefully addressed crafting IDNs.

After various experimentations (Mariani & Ciancia 2019a), we embrace the idea that IDNs should be designed starting from storyworlds to take advantage of their richness, recalling the theory of fictional worlds (Wolf 2012) where the suspension of disbelief can allow the user to reach a state of immersion and pleasure (Frasca 2001; McMahan 2003). Establishing a loyal agreement means involving audiences through time.

Switching from the level of the meanings to that of agency, IDNs allow interaction and participation in the story: users can take decisions and experience their consequences in how the story unfolds. This active role is referred to as 'interactivity', and constitutes a core feature of games, especially those with a high presence of narrative (Elson *et al.* 2014), and to a certain extent of IDNs (Green & Jenkins 2014). However, this comes with a design limit of IDNs: a definite narrative architecture and branches (possible choices). To support the design of IDNs addressing societal issues, the process entails reflecting on the possible narrative structures and media system while reasoning on how to leverage the transmedia paradigm at the best. To manage the complexity of the process a specific tool was

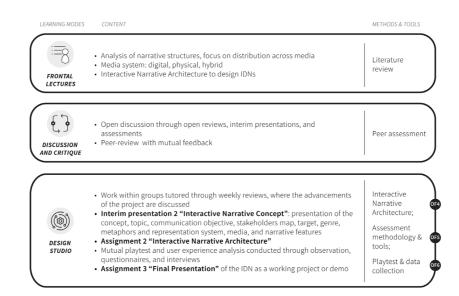


Figure 5
Theoretical Framework Applied to the Interactive Digital Narrative Domain.

designed. The *Interactive Narrative Architecture* (INA) (Mariani & Ciancia 2019a) serves as a multi-level blueprint that contains and intertwines the full narrative structure, critical events and branches, interactions with the story and channels, and media structure (Figure 5).

The theoretical framework systematises and combines theory and practice, prompting since the beginning of the design studio an operationalisation of the theoretical concepts introduced. Meaningful knowledge derives indeed from immediately applying the content knowledge acquired during frontal lectures.

Operational Framework

The operational framework (Figure 6) describes the iterative process for building interactive narrative artefacts. More specifically, it comprises seven design phases supported by questions that can lead the designers' work, suggested methods and ad-hoc narrative tools, such as Storyworld Canvas, Character Wheel and INA (Piredda *et al.* 2015; Venditti 2017; Ciancia *et al.* 2018; Mariani & Ciancia 2019a, 2019b). The operational framework aims at encouraging foundational self-reflective practices: from the prototyping, testing and evaluation phases, it engages students in practices that raise self-awareness of the competences developed and trigger peer-to-peer learning about the effectiveness of the artefact designed.

The initial two steps of the operational framework, OF1 *Context Analysis* and OF2 *Problem Framing*, are strictly connected and devoted to the systematic and indepth study of the chosen subject, including its foundations, features, connections to other issues and ecosystems of stakeholders. They rely on the theoretical foundations introduced in *Domain 1. CSC*, such as interpretation (Kelly 1955) and keying (Goffman 1974), to activate specific hands-on activities within the design studio. Moving from the theoretical to the operational Framework requires exploring the topic through literature review and brainstorming, identifying the target audience and the possible communicative aims using the design tool (ecosystem map, stakeholder map, problem mapping and mind map) and their interplay.

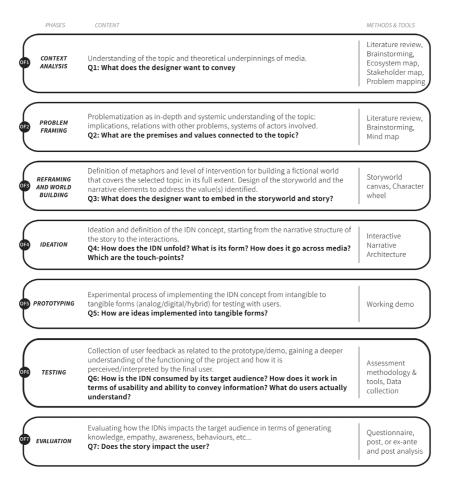


Figure 6Operational Framework Intertwining Design Phases, Contents, Methods and Tools.

OF1 and OF2 outputs:

- Definition of values and meanings to communicate
- Elaboration of metaphors to represent and express them.

OF3 Problem re-framing and worldbuilding is when designers propose a narrative interpretation of the topic, followed by defining the constitutive story elements. In this step come into play the main theories introduced by *Domain 2*. Storytelling in terms of narratology and worldbuilding. Building the storyworld is intended as the cornerstone for the development of the IDNs following these steps: building the storyworld (Pavel 1986; Wolf 2012; Boni 2017; Bell & Ryan 2019) starting from the values identified in OF1 and OF2; character creations (Propp 1968; Vogler 2007) as reduction and elaboration of the values of the stakeholders set out in the ecosystem map (OF2); and storyline(s) definition (Todorov 1966, 1975; Chatman 1978; Prince 1982; Greimas 1983; Genette 1988) which holistically builds upon what has been analysed so far.

OF3 outputs:

- Storyworld, created making use of the storyworld canvas (Piredda et al. 2015; Ciancia et al. 2018; Mariani & Ciancia 2019a, 2019b), embedding insights gained from the critical analysis and assessment of the topic, communications goals, values and metaphors coming from the OF1 and OF2, translating them into narrative elements of the storyworld;
- Creation of different fictional characters designed starting from the storyworld and its values.

OF4 *Ideation* is devoted to defining the IDN concept, starting from the narrative elements developed in OF3. In this regard, the research on IDN design started from the work of Janet Murray (1997) with a computer science and user experience approach to then extend the focus to its creative process (Herman 2004; Koenitz 2015, 2018; Koenitz *et al.* 2019). To support this process and confront the design challenge of designing IDNs, the design starts from the theoretical foundations introduced in *Domain 3. IDN*. Specifically, it begins with the storyworld developed and advances identifying the interaction and participation modes which allow the audience to partake in the story's unfolding.

OF4 output:

• Interactive Narrative Architecture (INA)

We defined INA (Mariani & Ciancia 2019a) the complete structure of the narrative shaped as a branching tree showing every possible pathway through the narrative and its critical events. It provides scripts and short descriptions of what happens in every narrative moment. It contains the nodes (branch points) that constitute the story, showing how and with what consequences some nodes bring to parallel plots. The structure provides a comprehensive overview of how the story splits and when/how the audience can interact with the artefact—from how the story branches and which are the possible choices, to dialogues, cutscenes and so on

A fundamental premise regards the educational context in which the course is held and how IDNs can be integrated into the design curriculum. In this landscape, IDNs are conceived as a model of inquiry, applying action research and research through design approaches as educational praxis to deal with social issues. In light of such reasoning, we include in the design process three crucial steps that complete the full cycle of design: (i) ideation, (ii) implementation and (iii) verification, assessing the communicative effectiveness of the work. OF5 *Prototyping* consists of translating the concept into a solution that can be experimented.

OF5 output:

• Analogue, digital or hybrid working demo

Implementing the IDN concept from intangible (INA) to tangible form is a requisite to approach the testing with the end-user. OF6 *Testing* requires to engage end-users in a playtest (internal and external) where to experiment with the prototype, conducted through participant observation, questionnaires, focus groups and

interviews. It is fundamental for collecting data and user feedback on multiple aspects of the prototype/demo (content, UX, UI). It provides an in-depth understanding of how the prototype is used, perceived and interpreted by the final user. Accordingly, since 2019 we have introduced a specific lecture on assessment methods in the course aimed at identifying the assessment criteria on which the IDN should be later evaluated.

OF6 outputs:

- Assessment methodology and tools
- Data collection

OF7 Evaluation is meant to elaborate the data gathered, assessing the IDN ability to address the three theoretical domains. It builds upon the data gathered to measure and assess the artefact effectiveness in conveying messages and values through its experience (content as in *Domain 1. CSC* and *Domain 2. Storytelling*), the UX and UI (*Domain 3. IDN*)—highly relevant considering the complex nature of such artefacts. The evaluation articulates on the set of criteria identified in OF6. This phase is pivotal in raising self-awareness on the ability to acquire knowledge and operationalise it into a working artefact.

Systematising and Converging Knowledge: IDN as Reflective Practice

The discourse so far highlights that IDNs have the advantage of being able to represent complex and possibly controversial topics, dealing with wicked problems, exploiting its procedural and participatory nature (Murray 1997). The role that IDNs as a form of digital storytelling for Narrative Change can play in forming and transforming users' perspective on specific issues demand for exploring the nature of educational praxis for their teaching. A significant role since we are in a momentum when individual perspectives challenge established narratives as instrumental rationalities. In such circumstances IDNs can stimulate self-reflection in users, and problem framing and systemic reflections in designers.

Users' self-reflection is facilitated because IDNs consent to address any topic and experiment alternatives, with the potential to revisit established mindframes. IDNs are inherently built for embedding by their own affordances a variety of possibilities which can be explored when interacting, nurturing comprehension and awareness. Their non-linearity and interactivity to users' decisions make IDNs able to return experiences that are to a certain extent personal. These features are on the ground of a reflection-in-action that the users can encounter consuming IDNs as interactive representations. Users are empowered to explore topics, make decisions, experience the consequences and implications of the choices taken, forming judgements on what is represented, within the safer environment of the fictional world (Mariani 2016). From the designer's standpoint, IDNs for Narrative Change should question the hegemonic discourse. However, their features make them highly complex, requiring to be systemically mastered for producing an engaging, meaningful outcome. Their relevance in conjunction with their remarkable potentialities make it pressing the need to include them in communication designers' curricula.

In light of that, the pedagogical model can be framed as a contribution to establishing conventions and building blocks of a design practice still in need of systematisation and operationalisation. Actual social issues on the one side, and IDNs as complex artefacts to represent and discuss them on the other serve as vehicles to knowledge, asking for the definition of a process that contextualises abstract multi-level knowledge, and operationalises it through an ecosystemic perspective. Because of their nature, agency and affordances, the process to design such complex artefacts is per se a fundamental source of knowledge and awareness that leads designers to reflect on multiple issues at one time: from a design process inherently transdisciplinary to how to address societal matters, represent them in fictional worlds to be interacted through media, and build meaningful experiences able to trigger reflection. Moved by the aim of turning social matters into engaging artefacts, the design process is a critical educational activity where selfreflection is a precondition for a significant elaboration, and learning is triggered by problems. The pedagogical model is indeed articulated to challenge and motivate designers-in-training to learn about the social issues addressed, IDNs as media able to go across media, and the process to design such complex artefacts. As such, designing IDNs can support the convergence of fundamental constructivist learning strategies (engagement, reflection for deep learning, effective integration of technology into education) (Barrett 2006), while facilitating reflexivity, expression of ideas and organisation of knowledge.

The contribution presented specifically answers the need for theoretical and operational guidance to design IDNs addressing societal issues. However, the potential application goes beyond the field of IDN, including other design fields such as games, audiovisual artefacts (such as iDoc and interactive films/dramas) and other complex artefacts aimed at triggering social change, which relies on the use of narratives, fictional worlds and storytelling at broad.

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