

Jun 25th, 9:00 AM

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### **Citation**

Shaw, C., and Nickpour, F. (2022) Design as an agent of narratives: A conceptual framework and a first exploration in the context of inclusive paediatric mobility design, in Lockton, D., Lenzi, S., Hekkert, P., Oak, A., Sádaba, J., Lloyd, P. (eds.), *DRS2022: Bilbao*, 25 June - 3 July, Bilbao, Spain. <https://doi.org/10.21606/drs.2022.146>

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# Design as an agent of narratives: A conceptual framework and a first exploration in the context of inclusive paediatric mobility design

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doi.org/10.21606/drs.2022.146

**Abstract:** Although much of human experience is qualitative, front-end design documentation typically defaults to quantification which can abstract, dilute or lose meaning and reasoning with regards to lived experiences. Narratives are a well-established channel for gathering rich qualitative insights around individual and collective experiences, perceptions and values. However, the potential to advance the role of design beyond simply an embodiment agent for dominant narratives - to an agent for uncovering, interrogating, speculating, and scaling a diversity of narrative 'classes' and 'statuses' - is yet to be fully explored. This paper proposes a conceptual framework positioning design as an agent of narratives through three strategic narrative roles: (1) acknowledgement and capture, (2) negotiation and speculation, and (3) embedding and scaling. A first exploration in the context of inclusive paediatric mobility design is used to explore initial insights, implications and limitations of incorporating narratives, as well as their potential to amplify marginalised voices, inform and steer design practice, and bring about transformative impact.

**Keywords:** Narratives; Human-centred; Design process; Inclusive paediatric mobility

## 1. Introduction to narratives

### *1.1 Definitions and manifestations of narrative across disciplines*

'Narrative' is a dynamic, multifaceted and slippery word-concept of inquiry (Bal, 2009) which has become a central concern in a wide range of fields and research settings. The variety of definitions, interpretations, approaches, methods and uses surrounding the term vary widely between and within disciplinary contexts (Mishler, 1995; Ellis, 2009; Sommer & Heinenh, 2009; Adler et al., 2017; Charon, 2017), leading it to be understood at many different levels and complicating the possibility of building upon previous literature or developing 'narratives' as an autonomous field. It is thus important to gain a bigger picture



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of narratives, to establish the boundaries of different definitions and to distinguish between neighbouring concepts, in order to inform the potential roles, applications and value of narratives within the specific disciplinary context of design.

Independent of disciplinary context, interpretations of narrative tend to be most influenced by the utilised research paradigm, which means even within disciplines there exist multiple definitions of narrative. There are three leading approaches to narratives which can be framed through the research paradigms of positivism, constructivism and pragmatism. The positivist approach typically focuses on the linguistic structure or quantifiable content of narratives and is often used to conduct narrative analyses; it is popular in the fields of discourse analysis, literary theory and humanities for purposes such as analysing fictional and historical writing (White, 2014; Young, 1984). The constructivist perspective typically emphasises the role of multiple subjectivities in the construction and interpretation of narratives; it is commonly used in philosophical and hermeneutic studies of texts. The pragmatic perspective typically seeks to understand the interrelated elements that shape reality through the meanings produced in narratives, by paying attention to individual case studies; it is increasingly used by practice-based disciplines such as engineering, medicine, business and law to learn about qualitative and intangible human-centred elements of lived experience and issues around professional practice (Walker et al., 2013; Hawkins, 1999; Wang & Geale, 2015).

One widely agreed upon point is that narrative is international, transhistorical and transcultural (Barthes & Duisit, 1975). Narrative can be embedded, transmitted and accessed through various modes, mediums and methods, examples of which are given in Table 1.

*Table 1. Examples of narrative modes, narrative mediums and methods to access them.*

<b>Mode</b>	<b>Examples of medium</b>	<b>Example of access method</b>
Verbal	Spoken language, storytelling, yarning, audio recordings, radio broadcast, user stories, interpretations and translations.	Interview.
Written	Literature, letters, texts, stories, journal records, field notes, interview transcripts, social media, accounts, statements, newsletters, autobiographical writing, auto/pathography.	Natural Language Processing.
Object	Products, artefacts, sculptures, object-owned narratives, tactile and spatial narratives.	Ethnoarchaeology.
Visual	Images, drawings, artwork, diagrams, photographs, cinematic, film, video, stained glass windows, action, gesture, sign language.	Observation.
Multimodal	A combination of two or more modes used to express a narrative.	Mixed methods.

Barthes and Duisit (1975) write “In this infinite variety of forms, [narrative] is present at all times, in all places, in all societies; indeed, narrative starts with the very history of mankind; there is not, there has never been anywhere, any people without narrative”. The medium of a narrative is important as it determines what can be told and how it can be told. For example, some media can depict a single moment in time (e.g. a photo) whilst others can depict change over time (e.g. film), some convey a fixed state in time (e.g. a published novel) whilst others transmit real-time delivery (e.g. a live news report). These differences raise questions about whether the same narratives can be expressed across all media and whether narratives must always appear in full or can also be told in part. Venditti et al (2017) propose the concept of ‘Micronarratives’ as a form of contemporary communication, describing them as a fragment of narrative which gives only part of a story or meaning, and relies on the ‘listener’ to dissect, connect, combine or assemble them to make sense. At the opposite end of the spectrum to this, the long-established concept of ‘Metanarratives’ serve to amalgamate multiple corresponding narratives, to create a comprehensive overarching grand narrative which embodies and transcends any singular narrative (Bolt, 2021).

## 1.2 Exploring relevant neighbouring concepts

In order to understand the boundaries and interrelations between concepts relating to narrative, an illustrative - but not exhaustive - inventory of definitions has been assembled in Table 2, from across various knowledge domains.

Table 2. Narrative’s neighbouring concepts and their definitions.

Neighbouring Concept	Definition
Story/Storytelling	A story is a tale about particular events and/or people which both gives rise to and draws from narratives. Storytelling expresses a kind of knowledge that can uniquely describe human experience, in which actions and happenings contribute positively or negatively to attaining goals and fulfilling purposes (Decortis & Rizzo, 2002).
Plot	Plot is the narrative structure through which the relationship between events are understood and described to configure a story. It defines a temporal range to mark the beginning and end of a story, provides criteria for the selection of events to be included in a story, temporally orders events, and clarifies their meaning in the story as a unified whole (Polkinghorne, 1995).
Frame	An interpretive pre-packaged explanation or story involving choices about how something is presented (e.g. how it is explained and what is or is not emphasised), often shared across a culture and employed unconsciously. Frames are dynamic and can be updated and changed through experience; narrative can be considered a type of frame (Aukes et al., 2020).
Perspective/Perception	Perspective is the lens we see the world through, determining how we view ourselves, others, and everything else around us. Perception is the interpretation and assignment of meaning to any given stimulus or sensory information in order to understand it (Aukes et al., 2020).

Point of View	Another term for ‘perspective’, or a metaphor for the perspective through which a narrative is presented (Genette, 1983).
Voice	Metaphorically signifies the opinions, views and expressions of individuals or groups, encapsulated by all modes of communication with explicit inclusion of non-verbal mediums. Particularly relevant when working with vulnerable and marginalised segments of the population, or those whose views have previously been excluded, muted or silenced. (Jones, 2016).
Value	Abstract representation of what we consider to be important and desirable, that guide or motivate attitudes or actions and help determine what is important, transcending specific situations (Richins, 1994).
Meaning	The symbolic value projected onto something, often determined by how it is interpreted and appropriated in a socio-cultural context. To be meaningful is the state of something holding significance, purpose, importance or value (Steffen, 2009).
Metaphor	A figure of speech which uses an abstract idea to provide clarity or identify hidden similarities between two things. They can be used to generate, share, and communicate new framings for issues as well as to understand how people think and to help people understand things in a new way (Lockton et al., 2019).
Imaginarities	A flexible concept which typically refers to the collective consciousness of nations or a particular social group, with regards to the set of values, symbols, institutions and laws through which their social whole is imagined. (Jasanoff & Kim, 2015)
Ideology	The range of cultural stereotypes or accepted knowledge which makes up the frame of values informing a narrative (Jasanoff & Kim, 2015).
Focalization	The cognitive, emotive and ideological orientations of the narrator (Genette, 1983).
Aesthetic Experience over Time	A theoretical framework which considers three components of aesthetic experience (narrative dimensions, discourse elements and body/sensory interactions) and categorises the temporal phases of user experience into moments of direct use, and moments of non-direct use that contribute towards the overall user experience (Ocnarescu et al, 2012).

### 1.3 Definition of ‘narrative’ and aims for this paper

Drawing from the previously explored array of definitions, neighbouring concepts and manifestations of narrative across disciplinary contexts, we clarify what is meant by the term ‘narrative’ in the context of this paper by putting forward the following working definition:

*Narratives are a dynamic way to organise, comprehend, express and share collective or individual knowledge, thoughts and experiences, making them a key tool for both individual and collective identity building. They are a type of frame that we can embrace to depict interpretations of reality, the way we perceive ourselves, our fellows and the universe. A narrative is characterised by the relationship between several*

*common elements including a medium for expression, reference to a character, a context or setting, a pattern of meaning, and the point of view of a particular social group (elaborated on in section 3.1).*

Designers have always embodied narratives in their work, whether conscious of it or not; every designed entity including products, services, systems and environments hold or convey a narrative. Conventionally, narratives have not been explicitly discussed and interrogated as part of a typical design process, in other words, they have been outside the remit of a designer's role and responsibility. But in order to effectively and collectively facilitate the transformative approaches required to design for the dynamic complex world, designers now need to proactively engage with narratives. And to simply act as agents of narrative. To advance the notion of design as an agent of narratives, this paper addresses the following three research questions around narratives in design:

1. Why are narratives significant in design and where are they most critical in the context of design?
2. How could narratives be conceptually framed in the context of design?
3. What are the implications and limitations of incorporating narratives in the specific context of Inclusive Paediatric Mobility design?

The following sections of this paper aim to establish an understanding of narrative as an integral part of designers' lexicon and design process, highlight the value of qualitative user-centred data in design, and explore why designers should operate on the wider narrative level, as well as the detailed specifications level.

## **2. Why narratives are increasingly crucial in design**

*This* section addresses research question 1 by exploring the significance of narratives and where they are most critical within the context of design. This paper has been predominantly written for designers in the domains of industrial, product, service and systems design. However, we argue that the importance of narratives relates to the overarching direction and role of the design field as a whole and thus, the content of this paper is believed to be pertinent to a broad range of design *domains*

### ***2.1 The need and urgency to engage with narratives in design***

Emerging design approaches such as 'system-shifting design' and 'transition design' are evolving the scope of a designer's role and challenging current designerly ways in order to map the complexity of problems, identify stakeholder conflicts and facilitate the co-creation of visions for more desirable futures (Irwin, 2018; Design Council & The Point People, 2021). Such evolutions present timely opportunities to focus on possibilities rather than solutions and to build in greater inclusivity through understanding and engaging with narratives; we propose that a radical shift from operating on a requirements level, to a wider narrative level is essential in achieving a standard of practice in which design becomes more inclusive, equitable and just, with the specific agenda of bringing to the fore narratives which have

historically been silenced due to dominant views and discourses that have the power to expunge marginalised voices (Jones, 2016; Noel, 2016; Costanza-Chock, 2020).

“The objects which people use, despite their incredible diversity and sometimes contradictory usage, appear to be signs on a blueprint that represent the relation of man to himself, to his fellows, and to the universe” (Csikszentmihalyi & Halton, 1981). Our interactions and experiences with designed entities shape how we perceive ourselves, our relationship to others, and our place in the world. Within each act of design, proactively or passively, designers are either approving or rejecting a dominant narrative through conforming, embedding and contributing to it, or opposing, challenging and transforming it (Jakobsone, 2017). When a designer fails to explore and interrogate the narratives they are using, they tend to unconsciously embed a dominant narrative without considering alternatives, or how these could impact their work. The metaphor of a river can be used to visualise the impact of narrative in design (Lockton et al., 2019), in that the narrative embedded upstream, or at the start of a design process, flows through every phase of the process, picking up force as it travels downstream; influencing motivations, expectations and design decisions from the outset, all the way to the user experiences and resulting impact caused once the design outcome is implemented.

## *2.2 Current state of narratives in design*

Within design practice, narratives have predominantly been used by designers, brand strategists and marketers to define, embody and communicate the higher level meaning and value of a design to their target user. In these scenarios, lack of exploration of new or alternative narratives can lead to innovation stagnation when redesigning products in a given field, whereas exploring and embedding new narratives in a design can spark innovation and shift the process from one of ‘redesigning’ to one of ‘reimagining’ or even ‘redefining’.

Grimaldi et al (2013) suggest the role of narratives in design can be explored on three key levels: design can facilitate a narrative, narrative can support the design process, and design can deliver a narrative. Narratives have been used metaphorically for branding and marketing purposes to embed meaning into a design to deliver richer user engagement and experiences through the design either facilitating or delivering a narrative. The act of design delivering a narrative could be achieved through the design having an external narrative attached to it, such as through branding (Woods, 1999), or by the design structuring user experience as a narrative over time, such as a product designed to evolve (Nickpour & O’Sullivan, 2016; Ocnarescu et al., 2012). The act of design facilitating a narrative could be achieved through the design reminding users of a designer-generated narrative, or by the design enabling a user-generated narrative to be imagined (Jordan et al., 2020; Venditti et al., 2017).

Literature concerning the use of narrative in design predominantly focuses on exploring the uses of narrative to support the design process, including using narratives as a tool to understand and empathise with users (Celikoglu et al., 2020), and using narrative elements as a tool to spark designer’s imagination and creativity (Turner & Turner, 2003; Strickfaden &

Rodgers, 2004; Childs et al., 2013; Danko, 2006). Narratives have long been prevalent in user-centred design processes as a means to empathise with users and better understand their identity through methods like storytelling, user diaries, cultural probes, personas and scenarios.

Whilst useful and interesting, existing literature around narrative on this level has yet to rigorously explore the potential of using narratives to deepen user-centred framing and amplify marginalised voices. This gap in literature and practice marks the area of focus for our research and represents the passive and complacent attitude design has held towards narratives until now.

### *2.3 Desired state of narratives in design*

When it comes to humans, there are many things that do not translate well when quantified; metrics and data simply cannot tell us everything we need to know and this is particularly true of narratives. In terms of translating stakeholder voices into the design process, there are few effective methods for incorporating heavily qualitative elements like narratives into a requirements specification (which generally aims to isolate a specific problem rather than show the complexity of it), which makes it difficult for designers to transition their designerly ways away from seeking quantitative or measurable requirements as a starting point. Consequently, during designerly investigations, designers typically focus on capturing user requirements which quantify what the user requires or needs from a design. Starting from the 'requirement' level means the designer is automatically working within a specific narrative without having first interrogated or even recognised it.

By proactively engaging with narratives from the outset of a design process, designers will be able to take on the important responsibility of defining which narrative/s they are designing with or for, enabling rigorous exploration, identification and questioning of narrative classes and statuses to help reframe or even redefine the problems or opportunities at hand. This requires designers to consider their own positionality in the design process and acknowledge voices that are often silenced in design. The exploration and consideration of a diverse range of narratives can also help designers engage with social justice issues by amplifying and giving privilege to the voice and experience of users, leading to critical design practices which prioritise principles of design justice (Costanza-Chock, 2020). Ultimately, narrative can help designers to make social justice a primary objective and end-goal of the design process, moving beyond simply an embodiment agent for dominant narratives, to an agent bringing justice to narratives whilst also creating more meaningful user-centred design outcomes.

### *2.4 Are narratives more important in certain design contexts?*

The extent to which narratives can help design become more inclusive, equitable and just comes down to a matter of whose narratives designers are engaging with, and depend to an important extent on the content of their narrative. In specific cases where a design project involves individuals or groups whose voice and thus narratives are typically given less authority in the design process, we argue that the potential roles, applications and values of

narratives go further than simply questioning whose narratives are being embedded in a design. In this context, narratives hold the potential to:

- Help designer's empathise with individuals' lived experiences.
- Uncover and understand a diverse range of narratives.
- Deepen user-centred framing.
- Challenge dominant societal narratives.
- Amplify previously marginalised voices.
- Enhance the agency of users.

Within design, the practices of Inclusive Design, Human Centred Design and Humanity Centred Design are good examples of where narratives have clear potential to achieve this higher level of impact, as well as ethics-centred and value-centred approaches (Bianchin & Heylighen, 2018). In the context of designing non-mainstream products, services and systems which are to be inclusive of marginalised groups (such as young children, the disability community, or those who are socio-economically deprived), narratives become critically and increasingly important as they often differ from mainstream narratives due to the differences in lived experiences which these groups have (Olsen & Pilson, 2022).

### 3. Framing narratives in the context of design

To address research question 2, this section is based upon a high-level thematic analysis of narratives across a wide range of modes and mediums, which identified various different classes, statuses and stages of narrative. A conceptual framework is consequently proposed, which combines these elements to frame narratives for design purposes in a structured, holistic and rigorous way.

#### 3.1 Narrative Class

'Narrative Class' is defined by the particular type of stakeholder, organisation or any form of social group who informs a given narrative. A few examples of different narrative classes which are commonly embedded in design are outlined below.

'**Experiential narratives**' are informed by lived experience, either from the individuals directly affected by the topic in question, or by ancillary stakeholders around them. Experiential narratives are typically based on personal and subjective encounters, inherently related to interacting with other people, things, artefacts, activities, or situations and expressed by integrating such life experiences into an internalised, evolving story of the self. As such, they often relate to phenomenology, self-concept, identity theory and archetypes.

'**Societal narratives**' reflect the general conscious or unconscious disposition of the public and can be informed by a range of information sources including media, scholarly influences, and even empathy with experiential narratives. As such, societal narratives can relate to social imaginaries, cultural constructions, social identity or representations, symbolic interactionism, social order and the status quo. It is hypothesised that certain stakeholders or groups have significant influence on the societal narratives around a concept as far as dominating it altogether.

**'Disciplinary narratives'** tend to be informed by collective practical or scholarly expertise, knowledge or experience from within a specific field, profession or subject area. Such narratives tend to stem from theoretical foundations or empirical understandings and can relate to disciplinary identity, epistemology and philosophy.

### *3.2 Narrative Status*

'Narrative Status' is defined based on the power and relation to other narratives, ranging from well-established and commonly used narratives to new and emerging narratives. A few examples of different narrative status are described below.

**'Dominant narratives'** are those which represent a mainstream viewpoint that upholds existing power dynamics; they are typically used by the majority of the population or by those in a position of power, and are often adopted and disseminated without much critical thinking.

**'Counter-narratives'** represent resistance against dominant narratives and provide a divergent way of understanding something, typically from the perspectives of those who have been marginalised or underrepresented; they can empower and give agency to members of marginalised communities. Counter-narratives can emerge organically from a community's experiences or can be strategically cultivated by change-makers to provide an alternative way of talking about an issue (Lueg et al., 2020).

**'Alternative narratives'** can exist in parallel to both dominant narratives and counter-narratives without necessarily opposing either of them. Alternative narratives could be well-established or recently emerging and represent a niche and perhaps uncommon viewpoint which has the capacity to fuse with other narrative statuses over time.

### *3.3 Narrative Stage*

'Narrative Stage' describes each of the key activities applicable for incorporating narratives in design. The three key stages are outlined below, describing the corresponding roles of designers and stakeholders.

1. **Acknowledge and Capture** a variety of narrative classes and statuses by populating a matrix such as the one pictured in Figure 1, to map the landscape of narratives around a given topic. This activity is facilitated by the designer but relies on input from stakeholders representing the relevant narrative classes. Particular attention should be given to acknowledging the dominant narrative used by design to address a given concept, and to capture and interrogate marginalised counter-narratives.

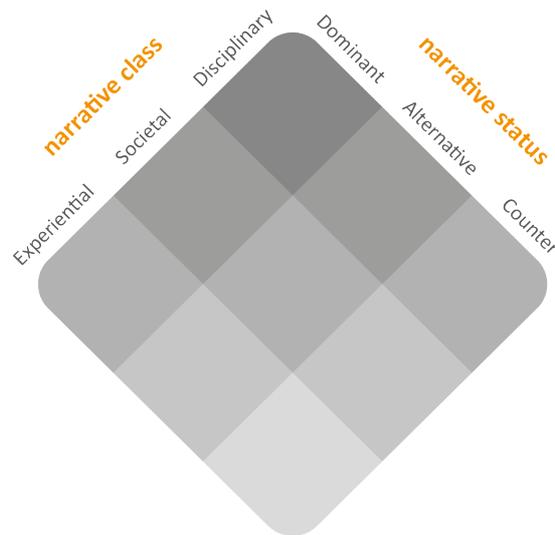


Figure 1. Example of a 'Narrative Matrix' used to capture and map a variety of narrative classes and statuses.

2. **Negotiate and Speculate** on the captured narratives in a collaborative manner; the designer brings together all relevant stakeholders and representatives of different narratives to navigate the landscape of captured narratives and mediates negotiation and speculation about the possible tensions, opportunities, priorities and relevance of each narrative in the given design context and the reasons for dominant and counter narratives existing. This activity should result in a shared understanding and the co-definition of the narrative/s which will be carried forward for embedding and dissemination.
3. **Embed and Scale** the co-defined narrative proactively; embed it within the product, service or system outcome of the design process to shape user experience, and scale impact beyond the given design process by labelling and packaging the narrative appropriately for use within other future design projects and for use externally from a design process in public discourse.

### 3.4 Conceptual framework for design as an agent of narratives

A conceptual framework (Jabareen, 2009) for incorporating narratives in design is proposed by bringing together the three aforementioned elements of narrative class, narrative status and narrative stage, and applying them to a design process model. The narrative stages outlined in 3.3 could be superimposed onto various design process models to suit the preferred process used in a given design context. As one of the most widely used design process models in the context of Product, Service and Systems design, the Double Diamond model (Kochanowska & Gagliardi, 2022) has been utilised as an example in this paper to demonstrate how the narrative elements are situated within each phase of design activity. Figure 2 illustrates the narrative stage of 'acknowledge and capture' sitting within the Discover phase, the narrative stage of 'negotiate and speculate' sitting within the Define

phase, and the narrative stage of 'embed and scale' sitting both internally and externally across the Develop and Deliver phases of the design process model.

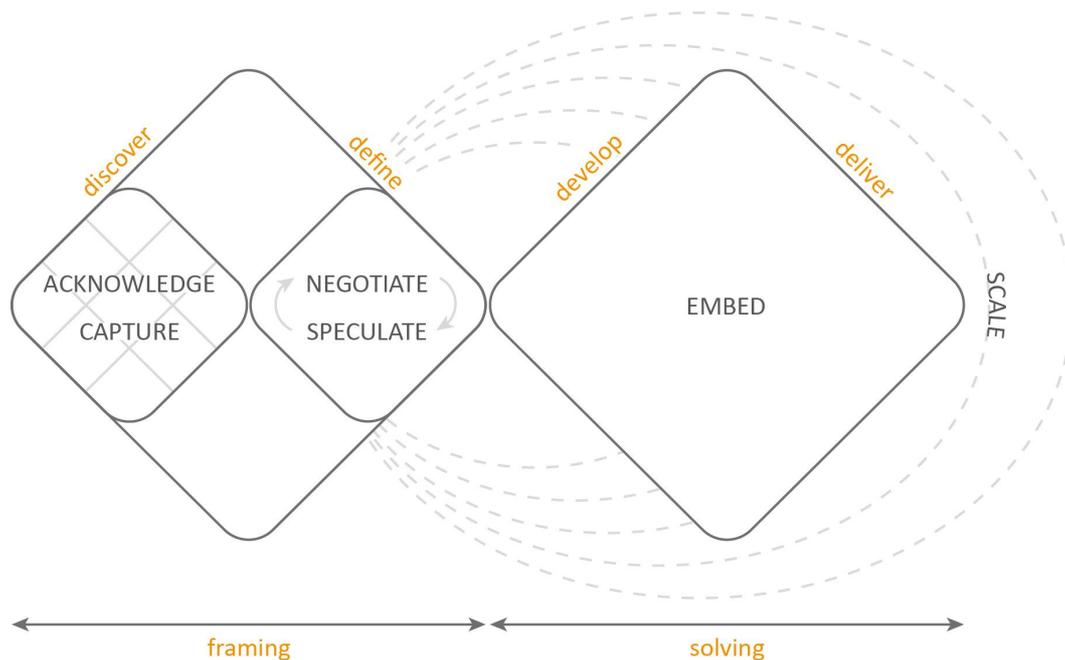


Figure 2. Conceptual framework for design as an agent of narratives.

## 4. Exploration of narratives in inclusive paediatric mobility design

This section addresses research question 3 by firstly acknowledging and capturing narratives from the specific context of Inclusive Paediatric Mobility (IPM) design, before exploring the potential implications and limitations of incorporating narratives in this design context. IPM design is the application of an Inclusive Design approach to create mobility interventions for children with disabilities, such as wheelchairs, walking aids, prosthetic limbs and exoskeletons; it represents a design context in which narratives have clear potential to achieve a high level of impact, as elaborated on in section 2.4. Furthermore, within the context of IPM design there is a need to transition towards a child-centred and transdisciplinarity approach for which acknowledging and capturing the diversity of stakeholder narratives is central (Shaw & Nickpour, 2021a).

### 4.1 IPM Design Narrative Matrix

Having established the significance of narratives in the context of IPM design, a Narrative Matrix was populated using the narrative classes of 'experiential', 'societal' and 'disciplinary' alongside the narrative statuses of 'dominant', 'counter' and 'alternative'. The aim of this activity was to acknowledge and capture existing documented narratives around IPM design as a preliminary investigation into the diversity of stakeholder's inherently different viewpoints and priorities, prior to conducting primary data collection to collaboratively map a more comprehensive range of stakeholder narratives. These existing documented narratives were accessed through a range of mediums including a high-level literature

review and children’s drawings and written descriptions from a previous piece of IPM design research (Shaw et al., 2022). The identified narratives were grouped by their ‘class’ and ‘status’ and then amalgamated to create a single metanarrative to populate each segment of the matrix, as presented in Table 3. It should be noted that the narratives presented in this matrix represent only a small sample of stakeholders and by no means encompass all those relevant to the context of IPM design.

Table 3. *Inclusive Paediatric Mobility (IPM) Design Narrative Matrix.*

<p><b>Experiential dominant narrative</b>  <i>Parent</i> - IPM design has done an excellent job at providing the appropriate devices for my child and it is comforting to know those with design decision-making power are so familiar with what is required (Feldner et al., 2019).</p>	<p><b>Societal dominant narrative</b>  <i>National health service</i> - IPM design decisions should be driven by budgetary constraints and prioritise the facilitation of movement for children aged 5 years and over. (Bray et al., 2020).</p>	<p><b>Disciplinary dominant narrative</b>  <i>Engineering</i> - IPM design should incorporate the latest technologies to facilitate inclusion and child-centred desirability. (Leaman &amp; La, 2017)</p>
<p><b>Experiential alternative narrative</b>  <i>Child</i> - IPM design should make mobility more fun with cool gadgets to help me explore and safely go on adventures in nature with my friends (Kenyon et al., 2020).</p>	<p><b>Societal alternative narrative</b>  <i>Medical practitioners</i> - IPM design should focus efforts on developing medical interventions to cure children of their mobility impairments to remove the need for assistive technology (Honan et al, 2021).</p>	<p><b>Disciplinary alternative narrative</b>  <i>Child Development</i> - IPM design should be focused on the provision of early years mobility interventions which can act as a tool for learning and developing (Guerette et al., 2013).</p>
<p><b>Experiential counter-narrative</b>  <i>Children</i> - IPM design needs to help improve the fit between my mobility device and the physical environment (Gudgeon and Kirk, 2015).</p>	<p><b>Societal counter-narrative</b>  <i>Rights activists</i> - IPM design should be approached from a human rights perspective and states should be responsible for providing appropriate mobility devices to children as soon as needed, rather than waiting until they reach 5 years old (Shaw &amp; Nickpour, 2021b).</p>	<p><b>Disciplinary counter-narrative</b>  <i>Disability Studies</i> - IPM design should prioritise accessibility of physical environments over the design of more high-tech mobility interventions (Shew, 2018).</p>

#### 4.2 Initial insights from exploring narratives in the context of IPM design

Although the Narrative Matrix in Table 3 was used to capture relatively high-level narratives around the topic of IPM design, the level of focus captured through a narrative matrix could be adjusted depending on what type of narrative transition is desired. For example, focus could be zoomed in to transition narratives around a specific subtopic or design feature (e.g. customisability), or zoomed out to transition overarching metanarratives (e.g. impairment > disability > ability > superability). A high-level approach like that in Table 3 is likely to result in multiple narrative classes existing in each segment of the matrix, which presents an opportunity to encourage transdisciplinarity throughout the negotiation and speculation stages of the framework. Having an overview of narrative classes and statuses around IPM design enabled clear identification of which stakeholder voices were included and

represented in the matrix, and provided a glaring opportunity to consider whose voice was missing and yet to be captured.

Across the different narrative classes and statuses captured within the Narrative Matrix, various interrelationships were noticeable. For example, the disciplinary dominant narrative shared similarities with the experiential alternative narrative, whilst the societal counter-narrative shared similarities with the disciplinary alternative narrative. Identifying and highlighting such connections is an integral part of the designer's role as mediator, to ensure the following narrative stage of negotiating and speculating facilitates efficient and productive discussion to establish a shared understanding of the similarities, tensions, and interrelations across different narratives. The full range of insights gained from populating the Narrative Matrix are unlikely to have surfaced or been brought to our attention had we not tackled the topic of narratives in the holistic, structured and rigorous way that this first stage of the conceptual framework facilitated.

#### *4.3 Limitations and Considerations for Design as an Agent of Narratives*

To enable a holistic and comprehensive discussion around the implications of design as an agent of narratives, a more rigorous case study should now be conducted, however, the first exploration exercise presented above offers a number of relevant insights as a starting point. A large number of differing narratives were initially collected to populate the matrix, which presented a challenge when attempting to amalgamate them to populate each segment with a single metanarrative. To overcome this, the narratives were treated similarly to data, whereby the noise around them was peeled off to identify key 'data points', whilst still enabling the messier qualitative elements of lived experience to be incorporated into the narrative matrix. The narratives presented in Table 3 have been purposefully simplified, but in practice this approach would avoid the abstraction, dilution and loss of meaning which occurs through quantifying lived experiences.

Self-concept is generally required in order to form an experiential narrative, which children typically develop between the ages of 3 to 5 years old, when they begin to express their 'categorical self' using non-judgemental descriptive labels to communicate the values, abilities, attitudes and attributes that they believe define them (Baumeister, 2010). For this reason, it could be difficult to elicit such narratives from very young children through means of verbal communication, although this doesn't rule out the possibility of exploring alternative narrative modes, mediums and methods to access their experiential narratives (e.g. observation). In parallel to this limitation, children's narratives around IPM design are informed and shaped by the interplay of multiple other evolving and dynamic narratives around mobility, childhood and disability. Young children's narratives are thus likely to be malleable or at least less entrenched than those of older people, meaning it is important for designers to clarify their specific research goals and carefully consider the methods they use to access and capture children's narratives. In the case of IPM design, this could involve clarifying if we are aiming to capture narratives around a child's experiences of using a specific type of mobility device, or around their broader experience and concept of mobility, or if we are using their mobility device as a way to access their narratives around mobility.

When considering methods, there is also opportunity to explore if any of the neighbouring concepts outlined in section 1.2 could be used as vehicles to capture narratives.

## 5. Conclusion and further work

In this paper we propose that design is an agent of narratives; every designed entity embodies a narrative, whether it was explicitly intended to be embedded in the design by the designer, or done so unconsciously. After exploring why narratives are significant in design and most critical in specific contexts such as Inclusive Design, we infer that going forward, designers must accept responsibility to actively engage with narratives. To facilitate this, we proposed a Conceptual Framework for Design as an Agent of Narratives which (1) acknowledges and captures a range of narrative classes and statuses, (2) negotiates and speculates narratives, and (3) embeds and scales a refined metanarrative across the design process and beyond to inform and steer design practice and bring about impact. Finally, we explored narratives in the specific context of IPM design to populate a Narrative Matrix, which distinguished and mapped narratives according to their class and status, before discussing the implications and limitations of incorporating narratives in a design process.

Future work should explore the following phases of the framework including Negotiation, Speculation, Embedding and Scaling of narratives through design. Particular attention should be given to exploring the most appropriate and accessible mediums for packaging narratives to use both within and externally to the design process. The next step for this research thread will be to conduct an in-depth, rigorous case study to capture more detailed experiential narratives within the context of IPM and to compare these with the predominant narratives IPM designers typically design within, in order to understand what gaps exist between children's personal narratives of lived experience and the narratives that IPM designers (consciously or unconsciously) are embedding and scaling through their designs.

**Acknowledgements:** This research was supported by the Hugh Greenwood Fund for Children's Health Research.

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