Chapter 7
Make-Believe in Gameful and Playful Design

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7.1 Introduction

On an unassuming summer day in 2012, The Hague became witness to a monster. The "Man-Eater", as the press would later call it, was first spotted around noon by a passenger on tram number 6, between Stuyvesantplein and Centraal Station. Roughly the size of a bulldog, with fins and telescope eyes, it floated through the air like a deep water dweller above the ocean ground, biting off the head of any pedestrian it passed, swallowing them whole in one swift, clean gulp, *shlupp*: just like that.

The Man-Eater is, of course, a creature of make-believe, summoned into The Hague as a thesis project by designer Daniel Disselkoen (2015). It was little more than two stickers: One thumb-sized, in the shape of a deep sea fish, attached on eye level to the inside of a tram window, and a second, larger sticker with a set of rules pasted on the back of the seat in front. The rules instructed the passenger to look through the window with one eye closed, such that the sticker would appear as a big fish floating in the panorama beyond. Moving her head up or down, the passenger could make the fish appear to float up or down in turn. The goal: between two tram stops, eat as many pedestrians as possible by visually capturing their heads in the Man-Eater's mouth (Fig. 7.1).

Disselkoen's Man-Eater is a great little example of a recent wave in interaction design (IxD) and human-computer interaction (HCI) that has been variously called gamification, gameful design, or playful design. Although each term captures slightly different phenomena, the underlying idea is the same: Play is the paragon of enjoyable, intrinsically motivated activity, associated with a wide range of

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P. Turner, J.T. Harviainen (eds.), *Digital Make-Believe*,
Human–Computer Interaction Series, DOI 10.1007/978-3-319-29553-4_7

Fig. 7.1 Daniel Disselkoen's man-eater

positive effects on experience, motivation, social interaction, learning, and well-being. Games and toys are artefacts purpose-built to afford play and its positive effects. Hence, game and toy design might hold design elements and guidelines for affording enjoyment, motivation, and the like that can be applied to other activities and systems (Deterding 2015a).

In our example, Man-Eater added rules and a goal to a daily tram commute to turn it into an eye-street coordination challenge – a *game* (Juul 2005). And not just that: It combined the game with a little fiction of head-chomping urban fish, anchored in words ("Man-Eater") and a fish-shaped sticker. It produced *make-believe*, a fundamental form and aspect of human play and its appeal (Burghardt 2005; Lillard 2014; Pellegrini 2009). Man-Eater materializes for us adults to see what children naturally discover on the backseat of a car ride: that something quotidian like a rain drop running down a car window can be made engaging by wrapping its fate in a bit of pretence. And we do not have to go back into childhood to see the engaging power of pretence: any look into a movie theatre or library will find ample adult faces entranced in a piece of make-believe.

Now in some sense, games and make-believe are separable: To turn the tram ride into a game, it would have sufficed to state the rules and paint an abstract targeting reticule on the window. Likewise, the two stickers could have merely prompted passengers to imagine the Man-Eater, without any rules. And yet make-believe and games also share something fundamental. Both are instances of "counting-x-as-y", of layering alternative meanings and functions on top of existing ones. In make-believe, a stick can suddenly count as a "magic wand"; by virtue of the shared agreement between players, its holder can command others to "drop dead". Games formalize this loose shared agreement into explicit rules and numbers: this stretch of the lawn now counts as "out", and crossing it with this leather ball in your hand counts as one "strike", and whoever scores the most "strikes" in so-and-so many minutes is the "winner."

We can already see that play, games, and make-believe are entangled in many interesting ways, both in and beyond gameful and playful design. This chapter hopes to disentangle them at least somewhat, with two provisos. First, it focuses on make-believe as part of the user experience. Many interaction design practices involve make-believe in a playful or gameful manner, such as "gamestorming" (Gray et al. 2010) or service theatre. These are covered elsewhere in this volume (see Turner, this volume; Luojus and Harviainen this volume). Second, given the largely non-existing existing research on make-believe in gameful and playful design, the present chapter is quite theoretical, chiefly drawing on neighbouring fields to suggest future research trajectories. To this end, it first introduces the concepts of games and play, gameful and playful design, and make-believe. A survey of existing design literature and empirical research finds that make-believe has been largely neglected in gamification and gameful design, and is conceptually and empirically best situated in playful design (Sect. 7.2). The majority of the chapter breaks out five major design aspects of make-believe: theming; storification; scripting, ruling, and framing; role-playing; and their integration in unified experiences. Each aspect is presented with potentially positive psychological and behavioural effects and explanatory theories; main design elements and strategies used to evoke these effects; empirical studies, if existing; and illustrative examples (Sect. 7.3). The chapter closes in summarizing the potential positive effects as well as drawbacks of make-believe; how and why playful make-believe designs differ from current gamification in form (often artistic one-offs) and technology (often audio); and what limitations future research should try to overcome (Sect. 7.4).

7.2 Concepts

Gameful and Playful Design

Designs like the Man-Eater are but the most recent outgrowth of a long history of applying games and play to 'serious' purposes, reaching back at least to Plato's Republic (Krentz 1998) and Chinese military leaders using Go to train in the art of war during the sixth century BCE (Halter 2006). Important waymarks are the emergence of the simulation and gaming movement starting in the 1960s, the rise of edutainment software in the 1990s, and of digital serious games in the 2000s (see Deterding 2015b for a fuller history). In HCI, Malone (1982), Carroll (1982), and Carroll and Thomas (1988) early on suggested to derive heuristics and models for "fun of use" from games, followed in the 2000s by researchers interested in the "funology" (Blythe et al. 2004) of "pleasurable products" (Jordan 2002). Designing for playfulness became a particular focus of this work (Korhonen et al. 2009; Fernaeus et al. 2012). But it was arguably start-ups, think tanks, and digital agencies that in the 2010s brought large-scale attention and investment to applied games and play. Under the catchword "gamification," they promised massive gains

in customer and employee engagement through the use of game design (Deterding 2015b). Today, serious games, playful design, and gamification are growing and intertwined industries and research fields.

Naturally, several terms and definitions have been suggested to capture these phenomena. As for "games" and "play", despite or because of decades of research across disciplines, scholars mostly agree on what they disagree about (see Sutton-Smith 1997; Henricks 2015, for play, and Stenros forthcoming, for games). "Play" is generally seen to refer to a kind of *activity* and/or psychological-behavioural *mode of engagement* with the world, whereas "games" typically refer to *objects* or *systems* designed for that activity (see Stenros forthcoming for exceptions). For *animal and childhood play*, ethology and developmental psychology provide convergent empirical descriptions of play features (Burghardt 2005; Pellegrini 2009): play is intrinsically motivated, autotelic; it transforms and recombines other, functional behaviours – exaggerating, varying, repeating, representing them, rendering them incomplete so they lack their 'serious' consequence and thus, their obvious immediate instrumental or survival value; finally, play tends to occur when no other immediate inner or outer pressures are felt. In game studies, Salen and Zimmerman (2004) and Juul (2005) have provided influential recent syntheses of *game* definitions. Juul's oft-cited "classic game model" defines a game as "a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable" (Juul 2005, p. 36).

Moving on to applied games and play, definitions are likewise still contested, particularly with regard to *gamification* (see Seaborn and Fels 2015 for a review). There is consensus that gamification refers to a design process, activity, or strategy, not its end result. Beyond that, some definitions have framed gamification through particular means (game design elements like points, badges, leaderboards, cf. Deterding et al. 2011), others through particular ends (gameful experiences like competence, competition, etc., Huotari and Hamari 2012). Some include serious games (Zichermann and Cunningham 2011), others exclude them (Deterding et al. 2011; Huotari and Hamari 2012). Some delimit gamification to non-game contexts, on the grounds that 'adding game elements to a game' is tautological (Deterding et al. 2011); others don't, holding that a game can be made 'gamier' (Huotari and Hamari 2012); yet others view priming users to re-frame a non-game as a game to be a sub-form of gamification (Lieberoth 2015). This chapter adopts the matrix suggested by Deterding and colleagues (2011) and Deterding (2015a), for two reasons. First, it is well-established and widely adopted (cf. Seaborn and Fels 2015). Second, it explicitly maps the full space of applied games and play, which is particularly relevant for make-believe (Fig. 7.2).

Their matrix uses two (plus one) dimensions with two poles each. The first is taken from Caillois (2001), who noted that all human play exists on a spectrum between unruly, free, exploratory play or *paidia* (found prototypically in children's pretend and rough-and-tumble play), and the orderly, rule-based striving for

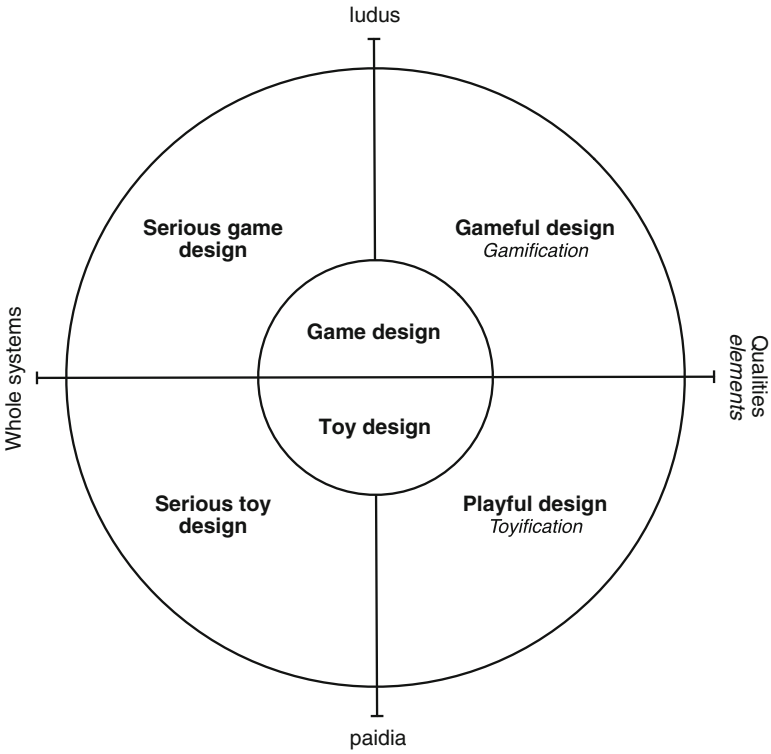

Fig. 7.2 A conceptual map of applied games and play practices

challenging goals or *ludus*, as found in classic gaming and competitive sports.[1] Second, Deterding and colleagues distinguish between *wholes* and *qualities* as the object of design. Combining these dimensions, they arrive at the following four quadrants:

- Serious game design or creating "ludic wholes": designing and/or deploying full-fledged games for 'serious' purposes;
- Serious toy design or creating "paidic wholes": designing and/or deploying full-fledged toys for 'serious' purposes;
- Gameful design or affording "ludic qualities": designing to afford the experiential and behavioral qualities characteristic for gaming;
- Playful design or affording "paidic qualities": designing to afford the experiential and behavioral qualities characteristic for playing.

[1] *Ludus* and *paidia* do not map onto games vs. play understood as objects vs. activities/modes. Rather, they characterize particular *styles* of play activity/engagement, which are afforded more or less well by particular *genres* of games (see Barr 2007, also for empirical evidence regarding Caillois' conceptual distinction). They *do* roughly map on the psychological distinction of pretend and role vs. rule play (Pellegrini 2009). This is reflected in the following by talking of *playing* (= paidic play) and *gaming* (= ludic play).

Deterding and colleagues (2011) define *gamification* as the *means* of using game design elements in non-game contexts, usually for the *end* of gameful design. Analogously, one can distinguish the end of playful design from *toyification* as the means of using toy design elements – toy shapes, colours, materials, and behaviours.

Make-Believe

Like "gamification", "make-believe" swims in a sea of closely related concepts, namely pretend, role, and rule play, fiction, and narrative.

Pretend play has been mainly studied as a phenomenon of child development (Pellegrini 2009; Lillard 2014), capturing a stage and form of play where children re-enact or invent strips of events assembled from their surrounding life and media world. Thereby, they often also engage in *role-play*, pretend play entailing "social content", that is, enacting people and their roles. In the course, children lend the actors, objects, actions and events they enrol in play alternative functions and meanings: bringing their doll to bed in the role of their own mother or telephoning with a banana. Many scholars from Huizinga on (1949) view pretend play as the evolutionary and developmental origin of symbolic cognition, counterfactual reasoning, the arts, and meaning-making more generally (see Lillard et al. 2011 for a critical review): in pretend play, children practice how to coordinate joint attention around objects and actions, and how to not reflexively react to them, but act based on jointly constituted functions and meanings. The *rule play* of games presents a later development of pretend play, where said alternative functions and meanings are formalized in the shape more or less explicit, not spontaneously renegotiable rules (Pellegrini 2009; Lillard 2014).

As such, pretend, role, and rule play *double* the foundational process in which members of a society jointly constitute the functions and meanings of their social world: this piece of paper counts as "20 Euros", these two people now count as "man and wife", stepping onto this street before that light has switched to green counts as "jaywalking" (Berger and Luckmann 1967; Warfield Rawls 2009; Searle 1995). Our everyday world is filled with entities that may have been made little more durable with the help of material objects (traffic lights and wedding rings and specially printed paper), but would ultimately not exist without us continually acting *as if* (or more precisely, *such that*) they exist. What sets pretend and rule play apart from canonical social functions and meanings is that the former are voluntary, temporary, and "as if": enacted to hold no lasting reality beyond the play episode.

Which brings us to *fiction*, mainly the subject of literary theory and philosophy. Prototypically encountered in literature and other fictional media, fiction is commonly seen as a genre of discourse (Searle 1975) characterized by its "as if" truth or reality status (Zipfel 2001). Authors have variously distinguished *fictionality* (Cohn 1990) – the syntactical, formal properties that allow us to tell apart a fiction film from a documentary; *fictiveness*, the semiotic, logical, or ontological status of propositions expressed in a work of fiction; and fiction as a pragmatic *institutional*

practice: the running agreement between fiction producers and receivers to co-intentionally treat them "as if" (Lamarque and Olsen 1994). Works of fiction involve a *fictional world* – e.g., J.R.R. Tolkien's *Lord of the Rings* renders the fictional world of Middle Earth, just like pretend play may generate a pretence world of pirates (Zipfel 2001; Ryan 2014).

Although fiction has often been equated with *narrative*, they are analytically separable (Ryan 2008). Put plainly, narrative is about telling a story. It relates to a certain semantic type of statement (a temporal sequence of events); a formal quality of communications (being organized and presented in a way we would recognize as 'typical' for stories: re-tellable, eventful, sequential, etc.); and a certain pragmatic communicative situation, consisting of a narrator relating the narrative to a narratee (Abbott 2014). To be sure, all narratives convey a story world (Ryan 2014), and this story world is very often fictional (see Middle-Earth). Vice versa, the overwhelming majority of works of fiction is narrative. But as narrative journalism and maps of fictional countries demonstrate, there is non-fiction narrative and non-narrative fiction.

To summarize, pretend play, role-play, rule play, and fiction strongly overlap in the constitution of alternative, "as if" functions and meanings. They often involve narrative: pretend and role play re-enact or invent narrative sequences of events, rule play generates sequences of events that are often retold as a story afterwards, and fictional media usually take a narrative form. And this overlap has led multiple scholars to reason that all four phenomena share an evolutionary and developmental origin in play.

Prominently – turning to *make-believe* – Kendall Walton suggested in *Mimesis as Make-Believe* (1990) that literature, movies, theatre plays, and paintings "are best seen as continuous with children's games of make-believe." (p. 11) Make-believe emerges from the interaction of "props" – toys, pictures, written or spoken words that prompt, anchor, focus and coordinate individual and shared imagination (ibid., pp. 19–21) – , and "principles of generation": "rules about what is to be imagined in what circumstances", based on a given prop in a given game of make-believe (ibid., p. 40). These principles are part of a larger shared "convention, understanding, agreement in the game of make-believe" (ibid., p. 38) to treat those generated imaginations "as if". In contemporary humanities, make-believe is chiefly understood with Walton as this *constitution of fictional*, "*as if*" *functions and meanings found both in play and representational art* (Bareis 2014). Because of its wide adoption, including the conceptualization of make-believe in games (Bateman 2011), we here subscribe to the Waltonian definition of make-believe.

The main point of remaining scientific contention is *how* the constitution of make-believe works. The traditional family of views holds that make-believe involves some mental (meta-)representations: things symbolically "stand in for" other, non-existing things, prompting mental images or propositions of those non-things, be it through simple association or some rule-based calculus (Rucinska 2014; this volume). An alternative, emerging family of socio-material, ecological, or enactive accounts views make-believe as a practical accomplishment emerging from the embodied dispositions of actors and affordances of involved objects (ibid.).

Here, functions and meanings are not cued or rule-generated mental representations with propositional content, but learning-shaped organizations of one's perception and action systems how to perceive and engage with certain objects in certain contexts that bottom out in the responses of the material environment and the running agreement of the co-present social group.

Positioning Make-Believe

Following Caillois, make-believe (or "mimicry", as he calls it [2001, p. 19]) is squarely a matter of *paidia*: games are "ruled *or* make-believe" (ibid., p. 9, emphasis in original), and make-believe lacks "the continuous submission to imperative and precise rules" (ibid., p. 22) that characterizes ludic gaming. Developmental psychology, as we have seen, likewise distinguishes pretend and role-play from rule play. In our matrix of applied games and play, this would put make-believe in the paidic half.

Game research since Caillois has unfortunately been more concerned with the relation of games to narrative than make-believe, particularly in the so-called "ludology/narratology" debate, which often conflated narrative and fiction (Frasca 2003). To establish games as a subject matter in its own right, early game studies engaged in what Bateman (2015) labelled "fiction denial": It drew a sharp conceptual distinction between "rules" and "fiction," holding that only rules are essential to games, conceding that digital games often comprise (analytically distinct) rules *and* narrative/fiction in one piece of "half-real" or "ludo-narrative" software (Juul 2005; Aarseth 2012).

From a Waltonian make-believe standpoint, this view is incorrect in that *both* rules and fiction are forms of make-believe (Deterding 2009; Bateman 2011, 2015). It is correct in that games and player communities can differently facilitate and emphasize *ludic*, rules-and-goals-focused gaming, or *paidic*, pretense-and-roles-focused playing (Barr 2007; Linderoth 2012). For instance, the genre of role-playing games particularly formalizes and facilitates pretend and role-play (Deterding and Zagal forthcoming).

A look into gamification and gameful design lends further support to Caillois' view, suggesting if not a fiction denial, then a fiction neglect: In most gamification design literature, make-believe is simply absent (e.g. Zichermann and Cunningham 2011; Kim 2011; Paharia 2013; Deterding 2015a). If it appears at all, then as a single bullet point or paragraph listing *avatars* or *story*. For instance, Werbach and Hunter (2012, pp. 78, 80) name "narrative (a consistent, on-going storyline)" and "avatars (visual representations of a player's character)" as game dynamics and mechanics, to then never return to them. Reeves and Read (2009, pp. 64–66, 68–71) enumerate "self-representation with avatars" and "narrative context" as two of the "ten ingredients of great games". In contrast, both books spend whole chapters on ludic design elements like points, badges, and leaderboards. And neither avatars nor narratives are necessarily make-believe.

Gamification research shows a similar picture. A systematic review by Hamari et al. (2014) identified 24 empirical papers on gamification, only 6 of which involved "story/theme" (versus 10 with leaderboards, and nine each with points and badges). In another review, Seaborn and Fels (2015) found 31 studies, of which only 3 featured avatars, 1 featured roles, and 1 a story (compared to 18 with points, 17 with badges/achievements, and 11 with leaderboards). Seaborn and Fels furthermore identified seven theories currently in use in gamification research – none of which explicitly speak to the effects of make-believe.

While both practice and research are in their infancy, this comparatively curt, superficial, and conflating treatment is indicative of the inferior role of make-believe – and paidic play more generally – in gamification and gameful design. Among current rhetorics and connected forms of applied games and play, only one explicitly focuses make-believe: the rhetoric of performance (Deterding 2015b). Notably, its proponents typically *distance* themselves from gamification or gameful design, preferring play forms and terms like alternate reality games, play in public, or live-action role-play (ibid., pp. 42–43). Proponents of this rhetoric commonly approach games and play as the collective performance of temporary reframings of everyday life. They value the paidic opening such performance produces for exploring and creating new, alternative behaviours, meanings, and experiences. As such, they connect to older rhetorics of play as identity – a strong shared experience that bonds a community – and play as imaginary: a realm of creative imagination (Sutton-Smith 1997). Given how their work foregrounds open exploration and backgrounds goals and rules, it is most easily classified as playful design.

7.3 Forms and Effects

Gameful and playful design, we noted, attempt to afford gaming- and playing-characteristic experiences and behaviours with non-game/play activities and systems, typically for an ulterior goal like enjoyment, motivation, or learning. To this end, they often employ design elements from games and toys. This raises the question what desirable effects make-believe has on user experience and behaviour, and what the 'active ingredients' of games and toys are that bring these effects about. Put more formally, what are the *affordances* of games and toys regarding make-believe: the functional compounds of design features and user dispositions that give rise to particular desirable experiences and behaviours (Deterding 2011)?

As noted, although foundational to pretend, role-, and rule play, make-believe has been chiefly employed as part of playful design interventions (and serious role-playing games, see below, Sect. 7.3.4). Even here, practitioners and researchers have been more focused on the design and effects of systems and make-believe as a whole than teasing out individual affordances. As suggestions for future research, we here highlight four design aspects: theming; storification; scripting, ruling, and framing; and role-playing.

Theming

In games and other design spheres, *theme* commonly refers to a particular semiotic domain (Gee 2003) or frame (Fillmore and Baker 2009) that a design evokes or "is about": a recognizable chunk of real or fictive life world like "pirates", "high fantasy", "Wall Street banking", "Japan", "hospital", or the like. *Theming* describes how a given design is "dressed up" in a domain (in contrast to *simulation*, where the system is intended to model a domain).

Maybe the most prominent design domain of theming is not games, but themed spaces (Grove and Fisk 1992; Gottdiener 2001; Ritzer 2009; Lukas 2013). As part of the larger shift towards an experience economy (Pine and Gilmore 2011), corporations are increasingly trying to transform interactions with customers into memorable and entertaining experiences – either as their chief product, or as a marketing tool to differentiate themselves from competitors and put customers into a positive, consumption-fostering mood. Examples are theme parks like Disneyland, theme restaurants like the Jekyll & Hyde Club in New York City, theme shops like the Time Travel Mart in L.A., and theme events like a party set in a 1940s WWII bunker by the Parisian event group WATO. There are even examples in the workplace, like start-ups trying to create a more playful office environment by designing meeting rooms as a James Bond villain's secret underground lair (Mäyrä et al. 2013).

The main tools for theming are art direction and language (Lukas 2013): Spaces, objects, actors, events and actions are audio-visually (and sometimes also in smell and interaction) designed and verbally labelled to evoke elements from the target domain: In a hypothetical hospital-themed restaurant, waiters might wear white overcoats and stethoscopes and call themselves "nurses", the drink menu may be labelled "medicine", the walls may be painted in hospital white and light green, etc.

Several desirable effects can be identified for theming: First, the novelty of a themed system or space can evoke curiosity in users, driving exploration to discover what else the designers might have themed how, as well as pleasurable surprise at unexpected theming (Silvia 2006). Paradoxically, theming is also seen to relax users through familiarity: themed spaces usually only evoke the most universally well-known semiotic domains and use the most stereotyped, clichéd signifiers (the doctor's stethoscope) to both make the theming easily legible and create a safe, calming space (Gottdiener 2001). In the case of franchises or fictional worlds with significant lore and fan communities, recognizing allusions and 'insider jokes' that are non-obvious for casual consumers may also generate positive experiences of cultural competence and belonging (Jenkins 2006).

A further positive effect often highlighted is facilitating understanding and learning through (metaphorical) external representations (Imaz and Benyon 2007). Providing novice users with concrete representations from a well-familiar source domain for a novel or abstract target domain allows them to use existing knowledge to infer and learn about the target. A well-known example in interface design is the desktop metaphor (ibid.).

In HCI, Malone (1982) first observed that wrapping interaction in a "fantasy" is one characteristic that makes video games more interesting and motivating. Carroll and Thomas (1982) similarly suggested that boring computer jobs like monitoring factory parameters on a screen could be made more motivating by representing them as e.g., landing an airplane in rough weather. Particularly with regard to learning, Malone (1982) distinguished "intrinsic" fantasies, where the theme maps onto and supports the skill to be learned, from "extrinsic" ones, where the theme is an arbitrary, exchangeable add-on. This distinction has since been articulated and tested as *intrinsic integration* (Habgood and Ainsworth 2011): Evidence supports that a learning game where the skill to be learned is both the central game challenge and fitting the fictional domain representing the challenge is more conducive to engagement and learning than a not-fitting one (e.g., calculating angles is intrinsically integrated with a game where the challenge and fiction is to load, aim, and shoot a catapult to destroy an enemy's castle, whereas translating words to fire the catapult would not be). The explanation is that intrinsically integrated fictions provide metaphorical mappings (see above), and that clashing fiction and game mechanics disrupt enjoyable immersion in the task – a phenomenon also called "ludonarrative dissonance" (Hocking 2007).

In playful and gameful design, few if any research has focused on theming. Birk and colleagues (2015) studied the effect of theming on four standard psychological tasks. For instance, a go/no-go task where users are to respond on one stimuli (circles) but not another (squares) was redressed as shooting zombies, not civilians. Birk and colleagues found that theming actually *decreased* performance and user experience, presumably because it added complexity and cognitive load and set up expectations of enjoyable gameplay that were not met by the underlying basic experimental tasks. Mollick and Rothbard (2014) found that having choice in the theming of a workplace game (in their case, between a fantasy and farming theme) positively affected user consent to the game, which moderated its affective and performance effects.

In design practice, one can highlight two examples. One is the ubiquitous commercial practice of theming websites and smartphone applications. For instance, during special events like Halloween or Christmas, interface elements are being redrawn with snow or pumpkins on them. At the high end of this practice are websites and applications around a fictional entertainment product, such as promotional websites for movies and film. Here, akin to attempts in game user interface design to create immersive interfaces (Fagerholt and Lorentzon 2009), interface elements are often designed to appear as if they are (a) taken out of the fictional world (e.g., a button in a website about the Stone Age looks like a rough-hewn stone) and/or (b) actually exist within the fictional world. For instance, in the (now-retired) first version of the website Pottermore.com, focused on the fictional world of J.K. Rowling's Harry Potter novels, users could read books, which were represented as actual books in an actual book library in the fictional world.

The second practice has been called "Barely Games" (Davies 2009): often artistic augmented reality works that layer themed elements of a fictional world into the everyday. Davies (2009) for instance created the *Situated Audio Platform*.

This smartphone "browser for geo-tagged audio files" produces movement- and place-appropriate sounds from an alternate fictional world (such as movement and door sounds from the video game *Half Life 2*) as the user walks through a city, and triggers additional audio files when the user moves into the connected GPS coordinates.

Storification

If theming manifests make-believe entities in space here and now, *storification* extends their existence in a meaningful form across time (Akkerman et al. 2009). It means creating and communicating a narrative that explains the past of the make-believe entities and/or guides their (inter)action from the first point of user contact on. While theming and storification are analytically separable, in practice, like make-believe and narrative, they tend to entail each other. "Fitting" stories complete, enrich, and reinforce the fictional world conveyed by theming. In turn, while the main way of communicating narrative is through written or spoken text, video, and enactment, themed environments often partake in the process through "environmental storytelling", particularly "embedded narrative" (Jenkins 2004): the environment entails clues that the user can puzzle together to deduce their origin story.

The desirable effects of storification have been studied and explored more extensively than theming, particularly in game-based learning. Since narrative is a fundamental structure in which humans make sense of and memorize the world (Bruner 1990), presenting a subject matter in story form facilitates comprehension and learning (Dickey 2011; Murmann and Avraamidou 2014a). A well-composed dramatic story arc sparks suspense and curiosity, motivating sustained engagement (Dickey 2006). Third, stories lend emotional significance to actors and events: we sympathize with the underdog we know has been treated unfairly in the past (Carpenter and Green 2012). By connecting to values and (fictional) persons we care about, stories can similarly increase the perceived relevance of goals and tasks a system suggests to the user. Fourth, good stories can engender "transportation": the audience becomes attentively, cognitively, and emotionally absorbed in the events of the story, disregarding the outside world and the unreality of the narrated events. Transported individuals are more susceptible to persuasion: they are more likely to adopt the beliefs and attitudes proposed in the narrative (ibid.). There is evidence across a number of learning interventions that well-designed narrative drives motivation, enjoyment, and learning through these routes (e.g. Paulus et al. 2006; Dickey 2011; Carpenter and Green 2012; Murmann and Avraamidou 2014b).

Several authors have suggested that adding (fictional) stories to a design is an important dimension of gameful or playful design to drive engagement (Dickey 2006; Reeves and Read 2009; Langer et al. 2013; Sakamoto and Nakajima 2014). One relatively common genre are tourism-focused mixed reality applications like *REXplorer* (Ballagas et al. 2008) or *Voices of Oakland* (Dow et al. 2005). These typically consist of smartphone applications or dedicated devices that deliver audio

files telling the story of historical sights in a city the user stands in front of, bound together by a larger, overarching, and usually fictional narrative, such as the ghost of a recently deceased guiding tourists through a cemetery and its stories.

Unfortunately, there are again relatively few effect studies on storification per se. Flatla et al. (2011) gamified several software calibration tasks, including a targeting task with a bare-bones fictional backstory about the universe being attacked by evil aliens; they found that gamification increased reported enjoyment. Halan et al. (2010) found that adding backstory, leaderboards, and deadlines to an application prompting medical students to interact with a virtual patient to train the underlying conversation model increased the participation rate. Downes-Le Guin et al. (2012) created a gamified version of an online questionnaire including a fictional fantasy theme and backstory, finding no significant effects. Chen et al. (2012) achieved increased user enjoyment and goal pursuit by wrapping math learning in a Tamagotchi-like pet nurturing game. Individual learning tasks were delivered as quests presented by fictional characters from the game world, complete with a narrative backstory motivating the task. Recently, Prestopnik and Tang (2015) compared player experience in two citizen science platforms that motivate players to solve scientific tasks, one with a fictional theme and story, the other with progress feedback (points, scores), and found that players significantly preferred the story-based platform. But really, research on the effects of storification in isolation is severely lacking.

Scripting, Ruling, and Framing

Both theming and storification are potentially passive forms of adding make-believe: they only require that the user expose herself to the themed space or narrative. In contrast, *scripting* and *ruling* turn the user into an active co-creator: rule or instruction sets guide the user to perform certain actions that result in generating a make-believe layer for herself (and potentially, initiated observers). These serve as and go hand in hand with social signals or meta-communications that *frame* the activity as e.g. play – frame here being understood with Goffman (1986) as a socially shared type of situation with particular norms, understandings, and socio-material organizations. Following Goffman (ibid, pp. 40–82), make-believe is not a frame, but a set of secondary frames ("keyings") that include daydreaming, theatre, movies, playing, and gaming. This set shares an ethos of voluntary, autotelic engagement and attentive absorption; the understanding of the situation being "as if"; muted social and physical consequence; and as a result of that, a practical and social license to temporarily engage in behaviours that in their non-keyed form would be physically dangerous and/or socially deviant (Deterding 2014).

Consequently, one positive effect of scripting, ruling, and framing highlighted in the literature is the exploration of new, alternative behaviours and experiences. Framing an activity as e.g., pretend play temporarily loosens whatever social norms prevail for the pre-existing situation, and replaces them with the norm to "play

along," opening users up for new, potentially transformative experiences (Flanagan 2009; Stenros 2015).

Second, a rich strain in the sociology of labour has studied how factory workers spontaneously reframe work as a game, leading to increased perceived self-determination and positive affect (see Mollick and Rothbard 2014, for a review). Csikszentmihalyi (1975) likewise observed that workers approaching work as play were more likely to have optimal or flow experiences at work. Several studies have found that verbally or visually framing an activity as "game", "play", or "fun" (vs. "work" or "obligation") positively affects motivation and performance, moderated by personality factors like self-control, gender, and age (Webster and Martocchio 1993; Littleton et al. 1999; Laran and Janiszewski 2011; Lieberoth 2015). Two main theoretical explanations are proposed: stereotype threat – performance anxiety based on the negative stereotype that they are "bad" at games lowers the actual performance of e.g., women or older people (Inzlicht 2011); and autonomy support: framing an activity as (conventionally autonomous, voluntary) play cues participants to construe the activity as autonomous, which constitutes part of intrinsic motivation (Deci and Ryan 2012).

Direct precursors of this practice are Situationist and Fluxus art pieces (Flanagan 2009) as well as pervasive games like *Assassins* (Montola et al. 2009). Like their Situationist and Fluxus precursors, contemporary make-believe scripting, ruling, and framing is chiefly artistic. One example are so-called subtlemobs, created by the art group Circumstance. As the group explains its piece *Our Broken Voice* (Child et al. 2010):

> A subtlemob is an invisible flashmob, it integrates with the beauty of the everyday world, so only its participants are aware of it. It's like walking through a film. It is experienced on headphones, and it is performed by you and hundreds of strangers. Armed with only an mp3 player this subtlemob takes you on a cinematic experience of twists and turns. A mixture of narrative and richly textured music fills your ears. Different MP3 files are distributed to different audience groups, so while some perform simple actions, the others hear stories about these actions, so that everywhere they look the stories come alive in the world around them. The roles swap back and forth, sometimes you'll just be watching, sometimes you'll be following instructions.

In the case of *Our Broken Voice*, participants are cast into the roles of either persecuted or persecutors in an ambiguous Orwellian surveillance state, instructed to act inconspicuously while trying to identify their target or persecutors, running away or persecuting a runner, etc.

Where *Our Broken Voice* works with scripts, *Massively Multiplayer Soba* (Flanagan 2010) chiefly employs rules: Teams are instructed to procure ingredients and stories about them for a shared noodle soup from residents of a local diverse neighbourhood – ingredients whose names are written in different foreign languages. Thus, the game rules and materials prompt participants to talk to strangers from other cultures about food, while the framing as a game provides the social license or alibi to do so.

A final example is the *Drift Deck* by Bleecker and Lozzi (2008). Picking up on the Situationist art practice of *dérive*, letting oneself drift through a city guided

by its geographical and architectural cues to discover new, unbeaten paths and experiences, it presents cards with intentionally ambiguous instructions such as "Some Bit of Unevenness. Confirm this with a passerby. Then turn and run." Participants are instructed to make sense of these instructions in their context, follow them, to then draw new cards.

In summary, scripting, ruling, and framing can be seen to afford an open-ended form of pretend and rule play that engages people in novel behaviours and experiences. These have an interesting relation to make-believe: Some interventions directly instruct participants to generate make-believe. Others constitute alternative meanings and functions in the same way games do: moving a pawn-sized black piece of wood on a chequered slate of wood has no meaning outside the game of Chess. A third group uses the alternative frame of art or play expressly to prompt participants to engage in activities that *also* already have function and meaning in their surrounding everyday life context, e.g. paying compliments to strangers in a park as a means to 'assassinate' them within the frame of the game (McGonigal 2011, pp. 191–197). That is, they intentionally use scripting and ruling to drive desired activities – not so much (or not only) by organizing the activities to be more motivating, but by changing the perceived governing norms of the situation.

Role-Playing

Following the distinction between pretend and role play in developmental psychology, *role-playing* can be seen as theming, ruling, and scripting with "social content", that is, enacting alternative actors and roles. While role-playing in and beyond simulation and gaming has been connected to a wealth of desirable effects (see Schrier forthcoming), we here focus on those particularly salient with make-believe social actors in HCI, which can be roughly split into two groups: the system interacting with the user through a make-believe avatar, and users themselves taking on make-believe roles.

Casting interactive systems or system components in the form of an avatar has a long tradition in HCI and playful design, with famous examples like the Microsoft Office help dialogue rendered as "Clippy", the talking paper clip, or the Nabaztag, an ambient information console shaped as a cartoony white rabbit. The rationale behind this strategy is what Reeves and Nass (1996) called "the media equation": people tend to relate to machines and virtual agents as if they were real human actors, including liking, emotional bonding, and responding positively to their praise. This emotional relating to systems can be increased through avatar representations and game design patterns like making the well-being of the avatar dependent on the user's actions (Dormann et al. 2013). A recent example is "Freddie Von Chimpenheimer IV", the cartoon mailman-meets-chimpanzee mascot of e-mail marketing software Mailchimp. Intentionally designed to evoke emotion (Walter 2011), the mascot personally greets logged-in users with their name and some new irreverent joke each day, and gives them a congratulatory "high-five" when they successfully send an e-mail campaign.

Moving on to users enacting make-believe actors, one can name at least six different desirable effects. The first is self-efficacy through vicarious experience (see Liebermann 2006, for a survey): By playing the make-believe "nano-bot" character ROXXI shooting down cancer cells in the first-person shooter game *Re-Mission*, teen cancer patients increased their beliefs in their own capacity to change reality (self-efficacy), specifically that they were able to fight their own cancer through medication (Kato et al. 2008). A related potentially desirable outcome is the so-called Proteus effect (Yee and Bailenson 2007): people's behaviour conforms to their (digital) self-representation, even after they stopped interacting through it. That is, users who act through a highly attractive avatar will later act as if they themselves were more attractive. Third, role-playing can allow users to enact their desired ideal selves, an experience that generates positive affect and intrinsic motivation (Przybylski et al. 2012). Fourth, creating and customizing one's make-believe avatar is a self-expressive activity that offers motivating autonomy experiences (Turkay and Adinolf 2015). Fifth, like scripting and ruling, role-playing can give participants an alibi and rationale to explore new identities, experiences and behaviours they wouldn't otherwise (Turkle 1995). Sixth and finally, playing the role of another person or group of people can be a visceral form of perspective-taking, increasing empathy and understanding for the embodied person or group (Bachen et al. 2012).

Given this rich tapestry of desirable effects, it is all the more saddening that role-playing is rarely discussed in gameful and playful design. Instead, the literature has chiefly focused *avatars* as sensory representations of social actors (see above). Now representational props ("this strange business of masks and disguises", Huizinga 1949, p. 13) are indeed a crucial tool for role-playing: masks, costumes (Fron et al. 2007), and avatars allow a user to dissociate from their social identities and take on new ones. Yet the avatars discussed in gameful design are mainly representations of users' everyday selves, and deployed for the informational purposes of displaying (presumed-engaging) progress feedback and status markers to the avatar owner and (presumed trust and coordination-facilitating) reputation information to other users (Reeves and Read 2009).

Unified Experiences

Although theming, storification, scripting, ruling, framing, and role-playing do function and sometimes appear in isolation, they can complement and reinforce each other, and often occur together in one integrated design. While frequently labelled as playful or gameful design in media and research, such unified make-believe experiences are formally hard to distinguish from pervasive games (Montola et al. 2009), alternate reality games (ibid.; McGonigal 2011), live-action role-playing games (Harviainen et al. forthcoming), or mixed reality performances (Benford and Giannachi 2011). They represent the most sophisticated and compelling make-believe designs across application domains. For instance, in education, we find multi-player classrooms (Sheldon 2011), practo-mimetic learning (Travis 2011), or

role-immersion games (Carnes 2014), which organize whole college courses as role-playing games set in a world fitting the educational topic, and use backstory and plot to engage students in their roles and motivate their learning tasks. As public education, the website campaign *World Without Oil* (Eklund et al. 2007) encouraged people across the world to join in the creation of the fictional first 32 days of a global oil crisis, with participants sending in fictional videos, blog posts, images etc. imagining the effects in their local community.

To illustrate how unified experiences make use of all dimensions of make-believe design, one may look at one much-publicized example in health and fitness, *Zombies*, *Run*! (Six to Start and Alderman 2015). *Zombies*, *Run*! is a smartphone application that encourages running by tracking the user's location and speed and blending a fictional world on top of it. In the initial fiction, users embody the sole survivor of a helicopter crash in a zombie apocalypse future that joins a fortified village of survivors as a "runner": somebody who runs into the world outside to recover resources while avoiding (and fleeing from) zombies. The app uses labels, visuals, and sound to evoke the *theme* of a zombie apocalypse, mainly interfacing with the user through headphone audio and the user's movement. It *rules and scripts* individual runs by setting target lengths and speeds to reach and including a sprint-inducing mechanic: at set but unknown points in time, a zombie horde is stirred up, meaning the user has to run at a higher speed for a certain period of time to escape them. Every run is wrapped in a motivating *story*, and continued engagement is motivated by the overall background story of the world being slowly told run by run. The user is given a clear *role* within the fictional world, and engages with established fictional characters that she builds up emotional relations with over time.

7.4 Conclusions

As the preceding pages have shown, make-believe – the constitution of fictional, as if functions and meanings – is a potent 'active ingredient' of play and games. Make-believe can stoke curiosity and arousal through surprising theming and suspenseful narrative. It can facilitate understanding and learning through organizing knowledge in experientially grounded metaphor and story. It can make us like and care about faceless systems as if they were real people, and lend tasks and goals relevance by linking them to values and (fictional) people we care about. It can open and motivate us to explore new identities, behaviours and experiences that lie outside our normal social roles. It can absorb and focus our attention, cognition, and emotion, making us more susceptible to persuasion. It can allow us to express and then follow in the footsteps of our own better selves, and enable us to see the world through the eyes of others.

Yet as the preceding pages also demonstrated, make-believe has remained somewhat at the fringe of applied games and play. Its desirable effects and their underlying affordances are different from those typically targeted in gameful design and gamification. True to Roger Caillois' contention, most current examples of

make-believe are more readily classifiable as playful design, which is secondary in public, industry, and research attention to both gamification and serious games (Deterding 2015b). And whereas the latter aim at commercial mass markets, the make-believe designs we encountered are usually artistic, bespoke, one-time installations. Make-believe on a mass-market scale is – today – found mostly in theme parks.

This may be partially due to the particular affordances and requirements of make-believe – theming and framing through labelling and art direction; storification through texts and environmental storytelling; scripting and ruling through instruction sets; role-playing through scripts and representational props. The main draw of theme and narrative consists in their novelty, which rapidly diminishes with every engagement (cf. Koivisto and Hamari 2014). Common solutions to this are either designs of such scope and complexity that they allow for many revisits (cf. the immersive theatre experiences of Punchdrunk), or regularly producing new content – both of which aren't very scalable. Make-believe via scripting, ruling, framing and role-playing typically requires and invites a great amount of openness, emergence, ambiguity, and multiplicity of meanings and actions. While humans routinely make sense of novel and ambiguous actions, this capacity still proves elusive for computers (Suchman 2007). That puts another damper on the (computational) scalability of make-believe designs, and is a likely reason why existing computational make-believe designs typically rely on some "human in the loop".

Besides limited scalability, we observed two further potential downsides to make-believe designs – increased cognitive load and stereotype threat – which again diverge from the common critiques of gamification around issues like coercion or privacy.

Another point of interesting divergence is the underlying technology. Most serious games are audio-visual experiences players interact with through standard computer screens and controllers, with some underlying computational model that assesses the player's growing competencies based on their in-game actions. Most gameful design likewise captures user behaviour through sensors or in-application tracking, and audio-visually responds to the user through screens. Many of the make-believe interventions we encountered – *Situated Audio Platform*, *Voices of Oakland*, *Our Broken Voices*, *You Are Not Here*, *Zombies*, *Run*! – in contrast rely on sound via headphones as the interface output, and time and location as inputs. One reason for headphone sound as the output channel is that it affords a non-embarrassing, unobtrusive individual layering of additional meanings on top of everyday life: Wearing headphones in public is a socially accepted, normal behaviour, and sound via headphones usually doesn't reach nor disturb uninitiated bystanders. Indeed, the thrill and community sense of participating in the "secret" (Huizinga 1949) of a play society in plain sight is one of the explicit design goals of subtlemobs (Child et al. 2010). The use of time and location inputs in turn may link to the fact that make-believe typically needs to be *coherent* to achieve involvement and transportation. Since both sense-making and dramatic effects rely on the chronological sequence in which information is disclosed, and

since users in make-believe designs often encounter information by traversing a space, make-believe designs often require the spatio-temporal choreographing of user *trajectories* through them (Benford and Giannachi 2011).

Yet there are also points of convergence. Like 'mainstream' serious games and gamification, there is a world of difference between most research studies testing the bare-bones addition of one line of flavour text to a cursor pointing task and real-world designs like *Zombies*, *Run*!, with multiple seasons of continuing and intertwining storylines produced by seasoned writers, expert voice acting and sound design, continually iterated interfaces and rules. This puts a question mark behind the ecological validity of most existing experimental studies, and may be one reason why some have actually found adverse effects of 'adding' make-believe (see Squire 2011, for a similar argument). A second shared shortcoming is that most designs and studies involve multiple interventions at once: progress feedback *and* goal-setting *and* story *and* avatars. From a design perspective, this often makes sense. From a research perspective, however, this makes it hard to draw conclusions and advance the systematic theorization of what the 'active ingredients' of make-believe are, and how design can reliably afford them. It also reproduces the casual conflation of concepts like make-believe, fiction, narrative, theme, and role-play prevalent in the current literature.

All of this doesn't make make-believe any less viable or appealing as a design strategy or research topic. If anything, it suggests that make-believe remains an unlifted treasure of gameful and playful design, to which the present chapter may serve as a first map and compass.

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