The Change Game: A Critical Game For Recognizing & Generating Alternative Futures

By

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Abstract

People do not think about or grapple with futures enough. Mainstream systems (government, media, and more) typically generate the futures with which we do engage, and these futures often fall within narrow bounds of thought that support a singular hegemonic future vision. This Major Research Project aims to empower people to recognize the possibility, and generate narratives, of plural futures. Specifically, building on past work, the research explores how a game might engage people in exploring and elaborating plural futures, especially those diverging from mainstream thought. If the game succeeds, players now understand that many futures are possible, and that they can envision these futures. They might be more likely to engage with myriad nuanced worlds, creating and expressing critical divergent opinions, thus challenging a singular hegemonic understanding of "the" future.

Keywords: futures studies, alternative futures, games, game studies, generative practices, narrative, innovation, strategic foresight, scenarios.

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Dedicated to those who question everything.

Table of Contents

List of Tables

List of Figures

Part I: The Fundamentals

Humans cannot know our futures. However, we can think about and plan for them. Strategic foresight and futures studies empower us to create narratives for possible futures, analyze and understand these alternative narratives, and take action toward creating a future in which we want to live (Inayatullah, 2008; Organization for Economic Cooperation and Development, 2015). Most people do not actively practice futures studies, yet do come into contact with futures. Whether it is through thought about a complex issue like climate change, watching a science fiction film, or something else, these interactions with futures can affect our perspectives. Unfortunately, mainstream systems (government, media, and more) all too often present us with variations of a singular hegemonic vision for our future that fit within narrow boundaries of thought (Nandy, 1996) – the paper discusses this vision, typically one of tech-centred capitalist growth, further starting at page twenty three. It might be important, if we value balanced power structures – through shared ideas and power – or critical thinking or productivity (discussed in more depth later), for people to explore outside these bounds of thought. How can we open our thinking to recognize many alternative futures, and to generate

narratives of these plural futures? How can we grasp the ‘s’ in futures, and see that each of us can produce our own stories of future worlds, thereby implicitly and possibly explicitly challenging or subverting any normative singular future that might exist? My research question specifically asks, framing my research in the context of game design, how might a game engage individuals and groups in recognizing the possibility, and generating narratives, of plural alternative futures?

Futures studies recognizes these questions. Many of its pioneers and prominent scholars highlight the importance of exploring alternative futures (Bell, 1997; Candy, 2010; Dator, 1995; Dunagan, 2012; Nandy, 1996), and have created practices to do so. Traditional futures studies ranges from predictive – usually associated more with corporate and military applications – to thought-provoking – with stronger relations to political movements, art, and design – and generally involves exploring and evaluating possible, probable, and preferable futures (Slaughter, 2003). My Major Research Project focuses on those generating stories and scenarios of these futures.

Still, there are some barriers for people wanting to use these scenario generating futures practices. Bishop, Hines, and Collins provide an excellent

overview of scenario futures practices with in depth evaluations of each. Some traditional techniques require heavy time investment and front-end organization – for example, morphological analysis is not often spontaneous or quick (Bishop et al., 2007). Practices often use top-down approaches – someone uses available data and information to craft a report or design a scenario with which other people engage (Bishop et al., 2007). Further, current techniques are inaccessible to many – for example, environmental scanning and accurate scenario creation/modeling require fairly high intellectual capability and information accessibility (Bell, 2003; Bishop et al., 2007).

More recent developments in futures studies challenge and improve on traditional practices. Experiential futures does as its name suggests; it creates experiences of futures to spur critical, speculative, and creative thought. Stuart Candy, a pioneer in this frontier of futures studies, argues that experiences can be accessible, meaningful, and impactful, leading to decolonized and democratized futures (Candy, 2010). He recognizes an "experiential gulf": essentially a gap between futures in theory and in experience. Guerrilla futures, building on experiential futures work and addressing this gap, takes experiential futures to the street, generating

spontaneous interactions with an unsuspecting audience (Candy, 2010, p.73; p.208). By creating a real, tangible experience with which people can engage, these branches of futures make the field more accessible and participatory – people engage with a scenario or experience, thereby eliciting novel responses and thought.

Yet, experiential futures does often still require heavy time investment and organization. Creating an in depth, well thought out performance does not, and usually should not, happen overnight. Recognizing this limitation, and building on the ideas of experiential futures, Stuart Candy and Jeff Watson created *The Thing From The Future (TFTF)*, which engages players in creating objects in already generated future worlds (Candy & Watson, 2014). The game makes futures studies, especially the concept of plural futures, accessible to everyone, and is a useful addition to a futures studies toolkit.

Games offer a path to a futures subset that is accessible, participatory, and lightweight. As mentioned earlier, most people do not engage with any futures practices. Games change how people engage with futures practice and discussion and thought in general; they create an opportunity for people to interact with concepts and modes of thought which they might otherwise

unknowingly overlook, or which they might intentionally ignore in a higher stake official context (such as an organization or business strategy meeting). Still, there do not seem to be games – *TFTF* included – in which players recognize the possibility of many futures *and* generate their own narratives of these futures.

Designing a "radical" game, one "designed for artistic, political, and social critique or intervention, in order to propose ways of understanding larger cultural issues" (Flanagan, 2009, p.2) – one that builds on previous work in futures studies, experiential futures, and futures gaming – could accessibly engage people in recognizing the possibility, and generating narratives, of plural futures.

Context

To design a game that actually fulfills this intention, one needs a strong understanding of futures studies and game design. Therefore, the following sections seek to examine relevant research and work in these fields.

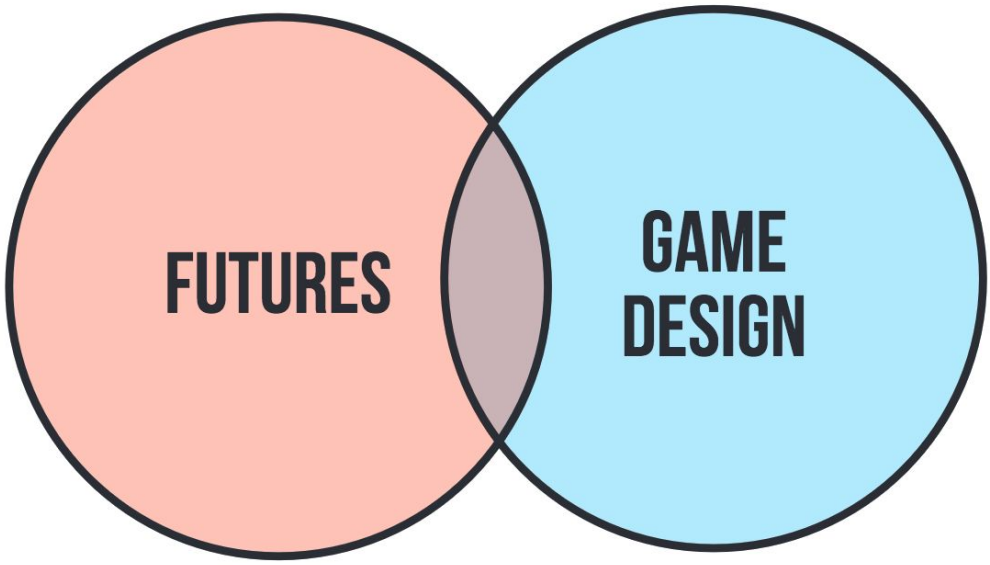

Figure 1. *Two Pillars*. This section explores these fields, and the interplay between them.

To recognize where futures studies could improve, one must have a strong comprehension of its historical foundations, problems, assumptions, and more. If a game is a potential route to recognizing and generating alternative futures, understanding how to design an excellent game is crucial. Learning how to create a meaningful and accessible game experience, while also evaluating my efforts throughout and making necessary changes, is no simple task.

Futures Studies

> "Simply to be a human being is to be a futurist of sorts"
>
> – James Ogilvy, 2002

Many people know almost nothing about futures studies. I might say, though I only have proof from two years of discussions with friends, family, and strangers, that *most* people know almost nothing about futures studies. When I decided to study "Strategic Foresight", I too did not know what I was getting into. I told people I would be trying to research what is happening now, so I could understand what the future might look like, then make design and other decisions that would make a better future – it was a sort of distorted paraphrase of OCAD's online program description (OCAD University, 2017), which was the only background reading in my future studies bibliography at the time.

The aforementioned discussions, in which most of us proved ignorant, actually provided me a valuable starting point; a baseline understanding of what people think when they think about futures studies, which tended to include predicting the future, high-tech societies, renewable energy, and

zombie/climate change apocalypses. Reflecting now, I see a lot of the problems presented in futures studies literature realized in my conversations. While this paper does not offer a completely comprehensive understanding of futures studies, it is worth asking and exploring the question, what is futures studies actually about?

I quote Wendell Bell, a prominent contributor to the field, at length because he drives at the heart of futures studies:

> Futurists try to contribute to the making of informed and wise choices by carrying out systematic studies of possible, probable, and preferable futures and by spreading information, formulating plans, and taking part in the public discussions about what constitutes the most desirable future and about what are the best ways to create it. Futurists aim to challenge people's thinking by encouraging them to examine critically their current routines of behavior, to consider alternatives, to search for currently unrecognized possibilities, to analyze their goals and values, to become more conscious of the future and the control they may have over it, and to care about the freedom and well-being of future generations.
>
> – Wendell Bell, 1994, p. 23

Bell presents the futurist as a rigorous creative critical thinker and a provoker of the same in others – we see definitions like this coming from other key futures studies thinkers including Cornish (Cornish, 2004),

Slaughter, de Jouvenel, Dahle, and more (Slaughter, 2003). Further, these thinkers have been influential in bringing futures studies together as a discipline, making great effort to clarify its history and core purpose.

Bell notes that the roots of futures lie long ago, but that it was not until the twentieth century that we saw a rapid growth of futures studies as we think about it today (Bell, 2003). However, simply noting the ancient history of futures before moving on might not be enough. Although there are occasional thorough dives into futures' roots (see Inayatullah, 1998 for a short read, and Galtung & Inayatullah, 1997 for a long one), we all too often ignore the existence and nuances of local traditional practices.

Professor John Borrows of the Anishinabek Nation – a First Nations group in Ontario – writes about the seven generations tradition wherein the Nation's decision-makers think seven generations ahead when considering present options (Borrows, 2008). His people have now lived seven generations under the *Indian Act*, an act of oppressive white colonizers. Yet, our Ontario-based university's curriculum failed to even acknowledge this local futures tradition. It may be because the program lives in an institution (amongst most other large well-established institutions in Canada) created by

colonizers and generally run by beneficiaries of the systems they set up. It may be because, as Ziauddin Sardar, Kjell Dahle, and other futurists suggest, as is the case in many academic disciplines, there is a western hegemony in futures studies (Dahle, 2002; Sardar et al., 2003; Slaughter, 2003).

Exploring the history of futures studies, if a western hegemony does exist, it manifests itself the same way it would in other disciplines: western history is seemingly much more accessible than non-western history. I have read about Sir Thomas More, H.G. Wells, and the RAND Corporation much more frequently than Afrofuturism, Sun Ra, or First Nations and indigenous traditions. I am not saying texts on these do not exist, but rather that they are not what appear most readily available or recommended to the student of futures studies.

With this possible hegemony in mind, we can revisit Bell's understanding of futures studies focusing in on a specific area: "Futurists aim to challenge people's thinking by encouraging them to... consider alternatives, to search for currently unrecognized possibilities..." (Bell, 1994, p.23). Further, we can look to Bell's list of core purposes for future studies, where number one is the study of possible futures: "exploring possible futures includes trying to

look at the present in new and different ways, often deliberately breaking out of the straightjacket of conventional thinking and taking unusual, even unpopular, perspectives" (Bell, 1997, p.42). Breaking from conventional thinking tends to challenge hegemony, so Bell's words might suggest that there is not a hegemony or that he is comfortable subverting the hegemony. Cornish too recognizes that "myriad potential futures lie before us" (Cornish, 2004, p.62). Inayatullah writes of alternative futures as a foundational concept of, and creating alternatives a pillar of, futures studies (Inayatullah, 2008). Ogilvy says, in reference to our inability to predict *the* future based on technological, social, value, economic, and other changes, "the best we can do is develop alternative scenarios" (Ogilvy, 2002, p.29). Jim Dator, former Director of the Hawaii Research Center for Futures Studies, states that "one of the main tasks of futures studies is to identify and examine the major alternative futures that exist at any given time and place" (Dator, 1995, p.1). It seems as though those appearing regularly in future studies' conventional foundations literature agree that considering and elaborating alternative futures is of great importance. They might place less importance on this if they supported a western hegemony in futures studies.

When we look to scholars less embedded or visible in these foundations, we see a similar importance placed on alternative futures. Ziauddin Sardar, self-placed as "the argumentative and demanding voice from the margins", sees a need for "a viable future, as an open, pluralistic space", and encourages us to "move from one future to a plethora of futures" (Sardar et al., 2003, p.4; p.3; p.255). Ashis Nandy, a critic of colonized futures, urges dissenting visions of futures, and sees a plurality of dissent as a way for futures studies to challenge hegemony (Nandy, 1996). Jake Dunagan, an experiential futurist and governance designer, calls for us to "contest, extend, or invent alternative images and find a way for them to flourish in the global cognitive ecology" (Dunagan, 2012, p. 141). Dunne and Raby, proponents of speculative design, argue that "alternatives are exactly what we need" and that by "exploring alternative scenarios, reality will become more malleable and, although the future cannot be predicted, we can help set in place today factors that will increase the probability of more desirable futures happening" (Dunne & Raby, 2013, p.2; p.6). Stuart Candy calls back to what Daniel Bell asserted, while introducing Kahn and Weiner's *The Year 2000* in 1967: "[W]hat is central... to the present future studies is not an effort to 'predict' the future… but the effort to sketch 'alternative futures'" (Candy, 2010, p. 26). Candy, an experiential futurist and strategic foresight professor,

sees great value in elaborating alternative futures provided the intention is to “escape the imposition of a single future” (Candy, 2010, p.135). It seems consistently across futures studies, whether in the more traditional or progressive or radical factions, that the ‘s’ is important. There is not one single future; there are an abundance of possible futures. As sociologist Richard Harvey Brown acknowledges of the past and present, “there are multiple realities… and none has absolute priority over others” (Ogilvy, 2003, p.61). We can also visually understand this fairly simple concept:

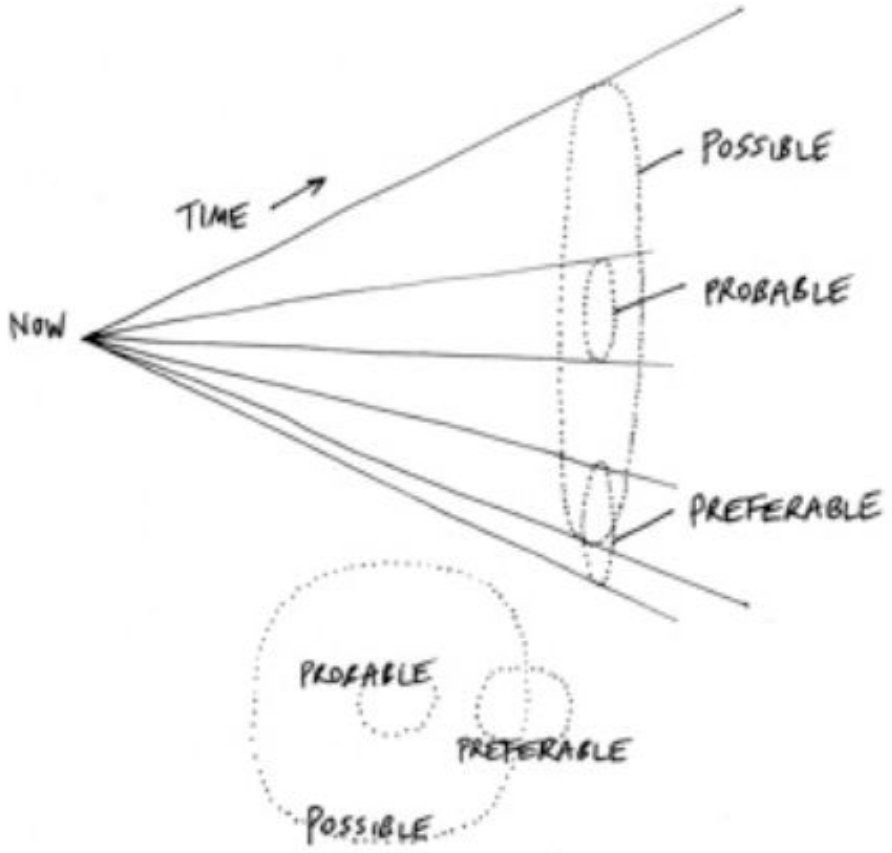

Figure 2. *Cone of Possible, Probable, and Preferable Futures (Candy, 2010)*. The further we go in time, the more options we have, and so the more possible futures exist – of course, some are more probable and/or preferable than others.

Candy argues that "the future is *as dynamic a domain as it is possible to imagine*, literally. It changes precisely as much as the present does, only multiplied – because there are always more possibilities than actualities" (Candy, 2010, p.36). The plurality appears evident and logical.

While it might be that most people in futures studies agree on the notion of plural futures, mainstream systems – which of course include various strains of government, media, academia, and more – often struggle with the idea. Cultural critic Hal Niedzviecki calls attention to a race in western societies to *win the future* along with an ongoing and growing focus on technology and innovation in everyday life and education (Niedzviecki, 2015). He identifies a futures binary in mainstream thought; we will either prosper (on Earth or somewhere else if need be) with continuous growth through a technocentric future, or technology will lead to a sudden collapse whereafter only the prepared will survive. Julian Bleecker, pioneer of design fiction, urges us "to create an alternative to the programmed myth that there is only one future on the flat graph that goes up and to the right" – "up and to the right" referring to continuous growth and consumption, along with the notion of "always smaller, faster, cheaper, brighter" (Bleecker, 2009, p.25). Google, Apple, Facebook, Amazon, and other tech corporations constantly press the inevitability of this tech-centred consumption-driven future by marketing projects like driverless cars, automated grocery stores, all-knowing all-connected devices, and more. Recent successful and explicitly futuristic films – including *Mad Max: Fury Road*, *Star Trek Beyond*, *Her*, *Big Hero 6*, and others – although excellent films in many ways, project futures in which

humans rise or collapse because of, depend upon, consume, or even love through/with, technology. The future undoubtedly comes with enhanced or extreme versions of our current relationships with technology. Turning to another aspect of this monofuture, Afrofuturist Ytasha Womack points out that "people can't fathom a person of non-euro descent a hundred years into the future" (Womack, 2013, p.7).

Essentially, *the* future seems to move in one direction – increased technology and consumption – that leads to our (white westerners) growth (if well managed) or global collapse (if messed up). Sardar argues that "the future we are given is an extension of the present" and that this "future has been made only by projecting instant technological answers and that means pushing forward the desires of the powerful" (Sardar et al., 2003, p.17; p.250). He sees it as a form of colonisation by globalisation. It is "shaping the world into the image of a single culture and civilization", which heavily involves current dominant systems that centre around western capitalist liberal democracy (Sardar et al., 2003, p.250). He urges us to "critique science and technology (the most powerful agents of change and thought), globalisation (the most powerful process of homogenization), and linear, deterministic projections" (Sardar et al., 2003, p.257).

Unfortunately, academic institutions might not be doing this, and might instead be contributing to future homogeneity:

> futures studies is increasingly becoming an instrument for the marginalization of non-Western cultures from the future… an elite of white, mainly American, male scholars are being promoted – not just to the exclusion of non-Western writers and thinkers on the future but also by almost total exclusion of women – as 'authorities' whose work decides what is and is not important in futures studies...
>
> – Ziauddin Sardar, 1993, p. 179

Although this might not actively prevent futures studies from pursuing its goals, it does give the discipline an inherent bias; we hear white male voices and perspectives more often than others, and white men typically make pioneering decisions for the field as a whole. Hearing these voices over and over, and having these same people making most decisions related to futures studies could lead to homogenous patterns. Of course, there are brilliant women and people of colour (surely there are other axes of privilege disproportionately represented as well) who have broken and are breaking ground in futures including Eleonora Masini, Ytasha Womack, and Suzanne Stein, but white men still hold disproportionate power.

The programs offered in academic futures studies, which may very well have been put in place by some of the last paragraph's white men, also reflect a hegemonic future. The Acceleration Studies Foundation compiles a list of futures studies and foresight programs around the world (Acceleration Studies Foundation, 2016). Although the list is not comprehensive – unfortunately, the World Futures Studies Federation's list is out of operation, and there do not seem to be any other lists – it gives a snapshot of futures studies education offerings. Of twenty-three part and fulltime masters and PhD programs listed, sixteen had in their title at least one of the following words: business, corporate, or technology. While so clearly aiming to explore alternative futures as discussed earlier, futures studies' public image communicates a singular vision.

So why do we not leave more space for alternative futures? Why do we name programs after the inevitable technocentric free market capitalist hegemonic future so many futurists struggle to challenge? It might be that people who have power in current global power structures want to maintain that power.

Still relevant today is what Ashis Nandy wrote over twenty years ago:

> No hegemony is complete unless the predictability of dissent is ensured, and that cannot be done unless powerful criteria are

> set up to decide what is authentic, sane, rational dissent and, then, these criteria are systematically institutionalized through the university system...
>
> – Ashis Nandy, 1996, p. 638

The most privileged in a society tend to control mainstream systems in that society. Chomsky's *Necessary Illusions* generally argues that these people have great power in shaping the bounds of our discourse through media and other means (Chomsky, 2003), which also gives them great power in defining "sane" and "rational" thoughts and behaviours. They choose who to include or exclude in decision-making, along with what decisions we should even discuss, and so have power to influence everyone's futures. If they choose to frame discourse in a limited way, one that supports their ends regardless of the "sane" or "rational" outcome chosen (as they've defined it), they can create any future they like. They can create institutions that support their ends, and they can educate the populace to follow an inevitable path toward a tech-centred western liberal democracy.

Yet, if one does accept this as reality, they should not feel pessimistic about it. It actually opens great opportunity. If people resisting this hegemonic future can break the bounds of normative discourse, they can directly challenge the hegemony. As Bell says, "futurists… tell stories. Their stories objectify

alternative possibilities for the future and, thus, permit people to think about them" (Bell, 2003, p. 316). By generating their own futures, and sharing these futures with others, people – not just futurists – can permit themselves and each other to think about non-mainstream futures and create real alternative futures.

If there is a hegemonic monofuture propagated by those with privilege in current power structures, and futures studies as practiced by a large part of the community reinforces this monofuture, we certainly should take Candy's advice to "make the unthinkable thinkable and unimaginable imaginable… to escape from narrow and hegemonic conceptions of the future, whether inherited or imposed" (Candy, 2010, p. 21). If futures studies thinkers are wrong about this hegemonic monofuture, and the discipline's community does not reinforce it, it is still worth making the unthinkable thinkable and unimaginable imaginable. I have already highlighted the agreement within futures studies on the importance of elaborating alternative futures. Further, as Dahle says, "since the future belongs to all of us, we all have the right to participate in shaping it" (Dahle, 2002, p. 93). Candy echoes, the "future belongs to everybody" (Candy, 2016, p.9). Every person should generate

their own alternative futures because every person has a right to shape our futures.

It actually seems crucial to subverting a dominant future belief that every person participates – a dominant belief cannot open up unless the people defending it consider alternatives, and those alternatives come from diverse perspectives. Individuals make up institutions, but that does not mean individuals regularly engage in critical thought and future visioning outside their organizational context. In North America, it seems most organizations and institutions reflect dominant power structures, and, as I argued from Chomsky's points mentioned earlier, truly serve to propagate these structures. Engaging in their organizational context, a group of individuals might create alternative futures with reasoning or goals that aim to maintain power – for example, increasing profits. Engaging in an individual context, these same people might have completely different goals and values embedded in their engagement ranging from social justice to creative fun to increased happiness. Exploring alternative futures with their own values in mind, rather than through the proxy of an institution, and as an act for its own sake – something thought-provoking, fun, and engaging – might affect an individual's thoughts, behaviours, and values. Through discussion – valuable

in itself – might come subtle or overt action that opens space for more inclusive dialogue and more collective thought and behaviour change, thus challenging hegemony.

Some might disagree with the idea that a hegemonic future exists. Further, some might also believe that certain people have a greater right to shape the future than others. This is something I would disagree with on moral terms as I value an inclusive society that balances power. However, if people believe these ideas, they might not see any need for recognition or elaboration of alternative futures. Still, there is "productive" value (value that coincides with a growth focused technocentric capitalist future) in exploring alternatives – we can think about generating and exploring alternative futures as a basic component of the diverge-converge cycles in high quality design and decision-making in general:

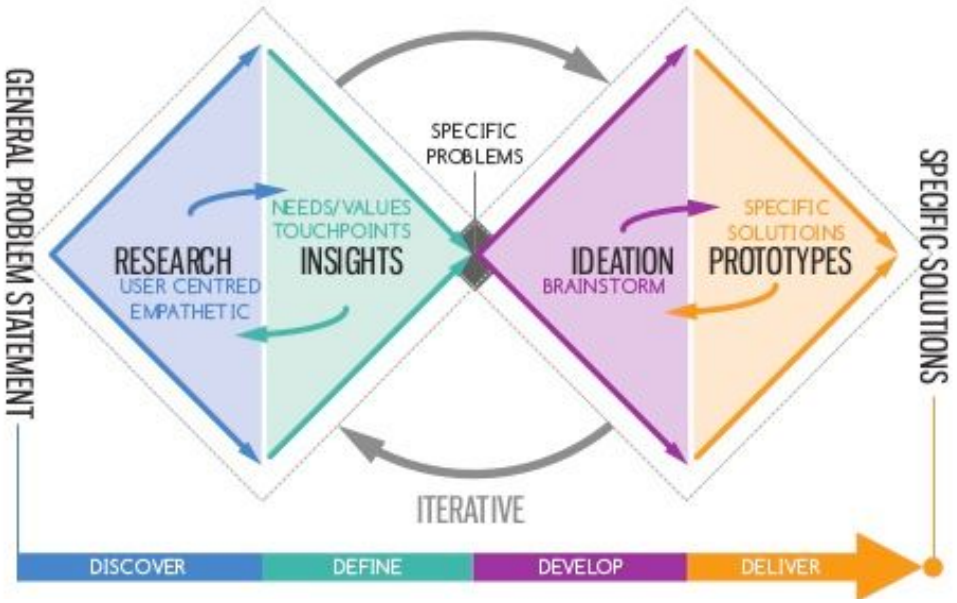

Figure 3. *Iterative Double Diamond Design Process* (Chu, 2014; after The Design Council, 2005). Iterative divergence and convergence can lead to high quality problem framing and problem solving. Alternative futures could fit in any divergence phase of this process.

Divergent critical opinions benefit decision-making processes. For example, as prominent social psychologist Elliot Aronson argues when discussing conformity in this textbook, *The Social Animal*, they help us avoid groupthink (Aronson, 2003). Political scientist Scott Page generally argues for the logic of diversity in corporate settings; we can enhance performance through diverse perspectives (Page, 2007). In essence, they are the "consideration of more alternatives and the more careful evaluation of alternatives – processes that contribute to the quality of strategic decision making in uncertain environments" (Forbes & Milliken, 1999, p.494). Healthy cognitive conflict as

a stimulus for stronger ideas and solutions underlay my entire masters program.

We can again return to Bell's understanding of futures studies as quoted earlier. It seems as though for people to systematically study probable and preferable futures, or to find "the most desirable future", they must first recognize that there are plural possible futures – otherwise, they would simply study the one future, which would be unavoidable whether or not preferable. Studying, generating, and sharing alternative futures comes across as important to most scholars within futures studies, whether to subvert standard understandings of futures – which I believe is of utmost importance – or to improve our ability to discover and create preferable worlds (which still requires subversion of mainstream futures in my opinion). Yet, it appears as though many people, even a few within futures studies, have yet to grasp the importance of the 's' and generate their own alternatives.

So, how can we enable people to grasp the 's'? How can we engage people in recognizing the possibility, and generating narratives, of plural alternative

futures? As shown from previous scholars' work, a game might prove valuable in this endeavour.

Game Design

> "There is a growing need for designers to approach the creative process with increased awareness and responsibility to be inclusive, fair, and cater to a variety of play styles."
>
> – Mary Flanagan, 2009

We played a lot of games growing up. Our vocabularies improved through *Scrabble*. We squashed each other's dreams to live the high life in *Monopoly*. We even fulfilled our Canadian identity's stereotype through endless apologies in *Sorry*. We jumped from stone to stone along lava rivers outside. We sailed pirate ships through shark-infested waters inside. Our stuffed animal toy friends wandered through the rainforest with us. We raced cars, shot people, and became professionals at most sports. We trash talked, worked with, and battled people around the world and in our living rooms in various contexts – WWII, intergalactic zones, suburban neighbourhoods, future and parallel universes. We roamed through the Shadowfell and other worlds, myself as an elf ranger named Milton, seeking to end the reign of an

evil tiefling warlord. We cured a serious yearlong pandemic disease. We Caught 'Em All – not talking about the diseases here.

"We" was and is my game community, which has grown, shrank, and shifted in every way as I've aged. Games have been a means to bring me together with others – ranging from my mom to someone's mom in Tokyo – through various means physical to digital. I've experienced much more with these people than I ever could in the immediate, physical, and often referred to as "real", world. Jane McGonigal – Director of Games Research & Development at the Institute For The Future and designer of games intending to make the world and our lives better – brought this to my attention in *Reality is Broken* (McGonigal, 2011). Johan Huizinga, a play scholar, argues that play is something preceding culture (Huizinga, 1958), and I extrapolate from this that play is something essential to life. It brings people (and even animals) together, in some ways enabling communities like mine to form.

Some of my experiences with my community have felt meaningful. Others have felt like a waste. The thought comes up at least once every couple months that I wish I had played piano every day for two hours during my fifteenth year, rather than *Call of Duty: Modern Warfare II*. Although I am now

fantastic at laser tag because of it, I look back at the time I played as time that could have been much more effective in developing me as a person – time that could have worked toward the values and skills I now hold and would like to improve. Yet, other experiences, like playing *Dungeons & Dragons* and other creative games with my friends, have felt worthwhile and engaging. What is it that makes one game experience so meaningful, now and in future reflection, and another so hollow and insignificant? How is this different for different people?

Game design in part aims to respond to questions like these. These are important areas for investigation because, as McGonigal makes clear, meaningful play engages people, and brings them back for more (McGonigal, 2011). The more someone plays your game, the more opportunities you have for the game to fulfill your intentions: an experience, certain emotions or reactions, critical thought, profitability, and/or so much more.

For my game to succeed, I must better understand the basics of game design. What is a game? What components of a game can we alter to bring about different experiences? How can I evaluate and iterate on my game as it develops? Further, I must struggle to investigate some of game design's

deeper questions: what is meaningful play, how can I create a game that enables it for a diverse player group, and how can I embed my intentions into a game from start to finish? While I am not an expert in game design or game history, this is a best attempt to bring together core ideas in the field, create a working understanding of games and game design, and eventually apply this to my game.

Let's start with the basics, which vary depending on who you ask. In *Rules of Play*, Eric Zimmerman and Katie Salen, game designers and educators, explore the foundations of game design – what games do, what they can do, and what they should do. They see games in three layers: rules, which are how we organize a designed system; play, which is how we experience that system; and culture, which is the the larger context that informs and lives in this designed system (Salen & Zimmerman, 2004). Jesse Schell, game designer and professor at Carnegie Mellon University's Entertainment Technology Centre, tries to build a comprehensive understanding of game design by examining layers from the designers' motivations to the intended experience the game enables for players (see figure 4). Each level builds on, bounces off of, and transforms the others (Schell, 2008). Jane McGonigal offers and breaks down a definition of games from gaming and play

philosopher Bernard Suits: “Playing a game is the voluntary attempt to overcome unnecessary obstacles” (McGonigal, 2011, p. 22). Like Suits, McGonigal sees games as voluntary hard work within specific parameters – rules – that has some sort of goal or outcome. Adding to this definition, she argues a game should have feedback systems acting to motivate players to reach their goal. Further, a high quality game will bring players into a state of flow – they want to stay in the game because quitting or winning are not as satisfying as exploring new possibilities and challenges within the game context (McGonigal, 2011). Mary Flanagan – professor of digital humanities at Dartmouth and leader of Tiltfactor, a games lab designing for social change – echoes some of this in quoting anthropologist and play theorist Brian Sutton-Smith: play is “fun, voluntary, intrinsically motivated, incorporates free choices/free will, offers escape, and is fundamentally exciting” (Flanagan, 2009, p. 4). Flanagan also challenges some of the standard notions of games, game design, and play with the concept of critical play, which goes beyond games as escapism and into “games for artistic, political, [and] social critique” (Flanagan, 2009, p. 2). Further, Flanagan questions narrow or specific definitions of games arguing that “games can be thought of more productively as situations with guidelines and procedures” (Flanagan, 2009, p. 7).

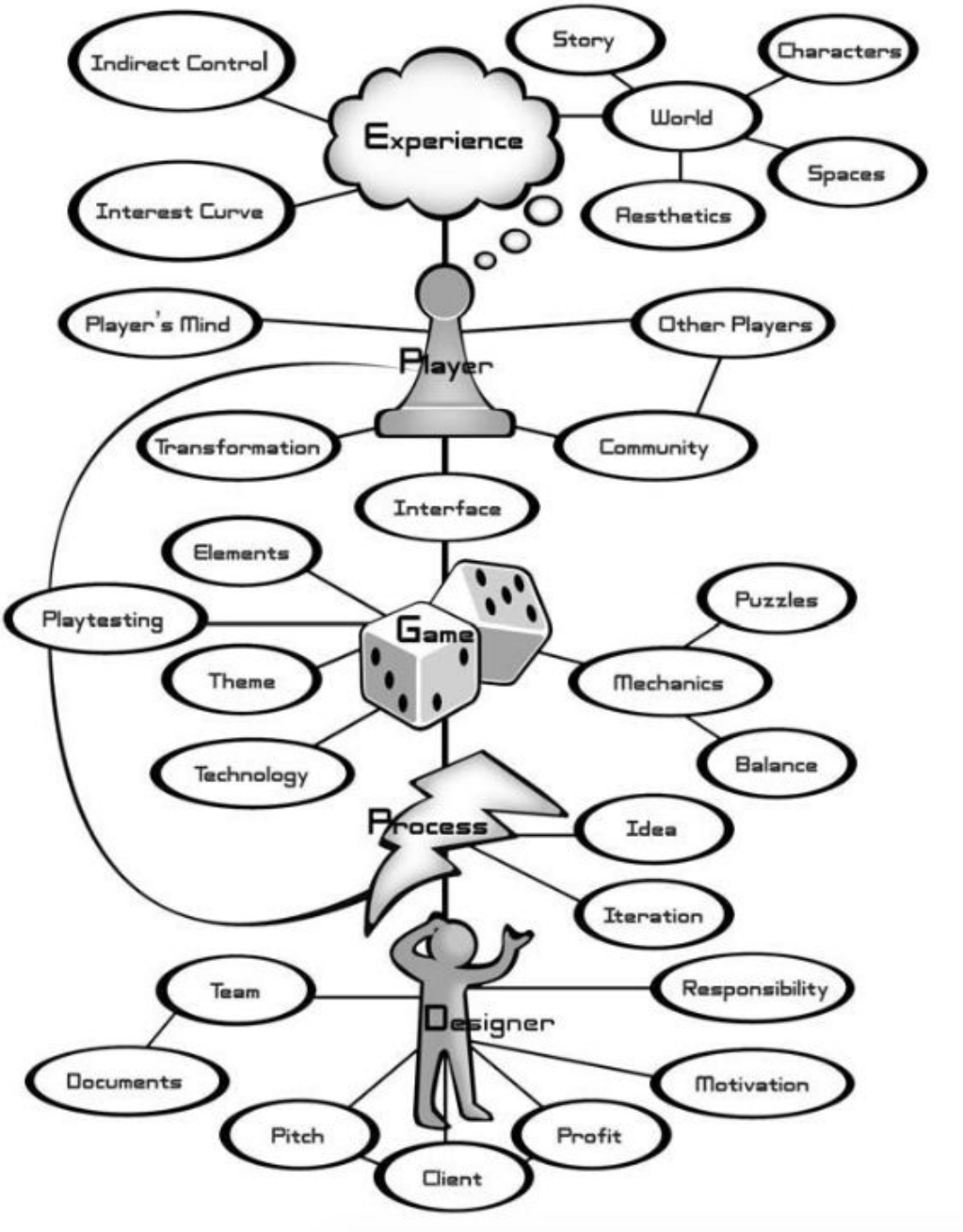

Figure 4. *Mapping Game Design* (Schell, 2008, p. 463). Schell explores game design through many perspectives and lenses in his book *The Art of Game Design: a Book of Lenses*. There are many aspects to game design, each of importance, and each influencing others.

It is clear there are many understandings of games and game design, and many of these work with, build on, and challenge each other. It is worth highlighting common elements to create a working definition for this paper, and also building on that working definition to reflect the goals of the Major Research Project.

Based on what game design scholars and thinkers have written, it seems consistent that games are voluntary, have some sort of rules, and that players work to a goal or outcome within the game context. It also seems implicit and necessary that games are participatory – a game without players (whether human, digital, automated, etc.) does not seem to be a game at all. Richard Lachman, expert in transmedia storytelling and serious gaming pointed me to Johan Huizinga's contribution to the foundations of play and gaming, *Homo Ludens* (Huizinga, 1958). Huizinga influenced many scholars from whom I have already learned. Huizinga reinforces in his introduction (and was of course one of the initial people to propose) that play or a game is something that a player or players voluntarily join, recognizing the rules established, to try to achieve some goal within an imagined context. Huizinga alludes to this play context – "temporary worlds within the ordinary world" – as the Magic Circle (Huizinga, 1958, p.10).

In many ways, though, the Magic Circle could still reflect normal life for a lot of people. In my case, on a macro scale, I voluntarily (although not necessarily happily) accept the western capitalist liberal democracy as my rule system and compete/cooperate with others to make the means necessary to survive and enjoy my survival. On a more micro scale, I voluntarily accept the rules OCAD University set up for graduation, and work toward the various objectives contributing to completing the MRP, being awarded a masters degree, and learning a lot about strategic foresight and innovation in the process.

So what is it that makes a game different from everyday life? I think, although not necessarily made obvious by their various wordings, many of the aforementioned scholars might agree on freedom as a differentiator, including freedom to and freedom from. Huizinga is the only scholar I have read who makes it explicit, "we have the first main characteristic of play: that it is free, is in fact freedom" (Huizinga, 1958, p.8), but he speaks of freedom in terms of freedom to engage or stop engaging in play when one desires. I want to go further with this concept.

To me, freedom as differentiator starts with the notion of escapism, as mentioned in Flanagan's quoting of Brian Sutton-Smith. Games are a way to escape reality. McGonigal makes plain that the real world is missing something (McGonigal, 2011, p. 3). When we play games, we enter new or modified contexts, which might alleviate us of oppressive or limiting social norms, our restricted physical capabilities, the cognitive dissonance of actions going against our moral code, and more. We become free from our normal situation, and, depending on the game, become free to do a lot of amazing stuff like skate around in a halfpipe, create and fly through portals, explore vast and intricate worlds, and more. In many ways, as is clear with games like *Dungeons & Dragons*, especially the way author and gamer David Ewalt writes about it in *Of Dice and Men* (Ewalt, 2014), we can become who we want to be, explore a different side of ourselves, connect with others, do things we never could in real life, but can in our collective imaginations, and more. "And more" is of great importance here (and repeated often above) because games give freedom to do more – to solve challenges differently, to encounter novel ideas, to interact with more people – with fewer restrictions, or at least only restrictions we explicitly agree to hold. McGonigal questions why people are choosing to game, positing that in the game context they might be more satisfied with the work they confront, feel a stronger sense of

community, and live more engaging and meaningful lives (McGonigal, 2011, p. 6).

Still, we need to move beyond understanding this enhanced freedom as necessarily relating to escapism. Although many games are escapist, relating little to reality and serving no tangible positive social function (for example, when I played shooting games everyday for at least a year in high school), we can enjoy the boosted freedoms games offer without forgetting about or working to improve our reality. McGonigal writes of it as a purposeful escape (McGonigal, 2011, p. 6). Flanagan's critical play is an instrument for conceptual thinking and creative expression, and questions various aspects of human life (Flanagan, 2009). It offers a "space for permission, experimentation, and subversion" (Flanagan, 2009, p. 13). Others recognize the added powers this space offers as well; media scholar Henry Jenkins argues "game spaces are designed to be rich with narrative potential, enabling the story-constructing activity of players" (Jenkins, 2004, p. 12). The story-constructing and world influencing freedom games offer is not necessarily contrary to reality either. Emily Boss, an independent role-playing game designer, looks to Alternate Reality Games (ARGs) as a way to maintain a connection to reality while giving players new and

interesting capabilities, contexts, and narrative-shaping power (Boss, 2013). McGonigal argues the same, seeing ARGs as "more gameful ways of interacting with the real world and living our real lives" and something to "play to get more out of your real life… as opposed to... escape it" (McGonigal, 2011, p. 125).

To create a valuable, intentional, and purposeful game, it is worthwhile to define "game". For the purpose of this paper, building on what game scholars and designers have argued, and trying to synthesize this with my thoughts, I have created a definition that allows for great exploration in my design process. I think one of Flanagan's insights, "games can be thought of more productively as situations with guidelines and procedures" (Flanagan, 2009, p. 7), allows the greatest liberty in my creation journey. Still, I think games hold other traits – if the aforementioned insight is all a game is, then the airport security line would qualify.

While I cannot generate a complete or perfect definition of games – is that ever possible? – I will share some elements and concepts I see as necessary within games (using Huizinga's Magic Circle and the work of other aforementioned scholars): voluntary, participatory, rules, goals, and

enhanced freedoms. The first four reflect the Magic Circle. For the first two, a person or people choose(s) to play. Rules can be explicit or implicit, and put varying levels of limitations on players. Players work to a goal or goals within the game context (that could affect their real life context depending on the game). Games enhance players' freedom to and/or freedom from. Players can do, think, and/or feel more because of new or modified capabilities and contexts, which includes social, economic, and political factors. So, with this theoretical understanding in mind, I think it is now worth exploring games more tangibly.

Games

In a Major Research Project building a game, the researcher fortunately has an opportunity to play a lot of games. I set out to play many games, specifically those that implicitly or explicitly involved futures, and focusing on those we can play tabletop style. From these games, I gained insights into game design and futures gaming. I also had a really fun time.

The games I played ranged from scenario simulations – including *Diplomacy* (Calhamer, 1959), *Captain Sonar* (Fraga & Lemonnier, 2016), and *Pandemic:*

Legacy (2015) – to custom-crafted adventures in fantastical worlds – including *Dungeons & Dragons 4th Edition* (Wizards of the Coast, 2007) and *Pathfinder* (Paizo Publishing, 2009) – to custom-crafting our own fictional worlds – including *Kaleidoscope* (Tegu, 2014) and *Microscope* (Robbins, 2011). I also experienced storytelling games like *Rory's Story Cubes* (O'Connor, 2010), *Once Upon A Time* (Lambert, Rilstone, & Wallis, 2012), and *Nanofictionary* (Looney Labs, 2013).

I learned more about what created a meaningful and engaging game experience for me, and what would bring me back to a game over and over. I experienced the theories about which I had recently read. Although you need to design a game for diverse audiences, and try to gather many people's perspectives on what you have created, it is still worth recognizing what you value in a game experience, especially if that game is extremely popular and played by diverse groups of people around the world. Of high importance in all the games I played that brought me back to play again was story – it made the games fun, and it meant I felt I was exploring rich alternative worlds while playing. Whether the game immersed me in its own story (like *Pandemic: Legacy*, which took roughly thirty hours of gameplay, or *D&D*, which can last months or even years), or empowered me to create a new

story on the spot (like *Microscope* or *Rory's Story Cubes*), that story brought the game to life for me. Stories also seem to be important and engaging outside a game context, whether the medium is film, poetry, an experiential futures scenario, or something else.

An important question to ask is why someone would want to play a futures studies game. I think people want to have fun, and see games as an opportunity for fun. However, that does not mean people would enjoy discussion about futures even in a game context. To resolve this issue, Richard Lachman encouraged me to find compelling games that allow us to dream and be creative. If my game design can transform futures discussion into something more palatable, something that allows us to dream and express ourselves, it might pull players in.

Because I saw stories as a core aspect of futures studies (stories can essentially act as alternative futures), I sought out storytelling games, many of which were quite compelling. While some of the earlier mentioned games use stories, not all allow players to express themselves and their ideas through their own stories. Considering my goal was to enable recognition

and generation of alternative futures, I needed to study games which encourage story creation and expression.

We can look to games like *Nanofictionary* and *Once Upon A Time* as the first step into these waters. In these, player craft stories, but using predetermined situations, events, characters, and more. Rather than creating something from their own imaginations, players use available elements to piece together a story. Still, the games are clearly enjoyable and engaging as they have huge uptake in the gaming market.

We can look to games like *DiXit* (Roubira, 2008) and *Mysterium* (Nevskiy & Sidorenko, 2015) for a bit more creativity space. These games use cards with artwork to spur our imaginations. In *DiXit*, players try to choose an image that reflects another player's stated narrative or title for that narrative. In *Mysterium*, players try to interpret the images a specific player presents to craft a narrative of a murder. Still, these games have limited expressive freedoms – players generate narratives along specific lines (like a murder mystery) and do not create or share many stories.

To open up expressive freedoms, we can look to games like *Rory's Story Cubes*. Players roll nine dice, and tell a story using the symbols that appear in front of them. While still providing a framework for a story, the game enables players to express themselves through original thinking. The same symbols could lead to completely different stories; the ultimate power is with the person looking at the images to create the story they want to tell. A game like this allows us to dream, and to generate stories we never knew we had inside us. Building on this, another game, *LUGU* (Miles, 2014), uses elements from *DiXit* and *Rory's Story Cubes* to try to enable creative storytelling through artwork prompts. Going even further, *Microscope* engages players in crafting a collective narrative of a world history. The game gives complete freedom to players within a structure of gameplay that encourages story creation and roleplaying – complete freedom to dream, to express ourselves, and to put any idea on the table.

Still, in all these games, there is a tendency toward complete fiction and fantasy – futures fiction can work, but fantasy takes us out of the realm of useful futures thought. Building on games like these, explicitly including aspects that provoke critical thought and alternative futures story creation (based in reality, even if exploring absurd or uncommon possibility spaces),

could help address my research question and make a game people really want to play.

While most games I played only implicitly involved futures, others explicitly brought futures into gaming. Games in which we look forward with our play, attempting to grasp at and possibly strategize within or around a possible future, fits within this realm. We see futures and games intersecting very far back in history in arenas like war gaming. While *Kriegsspiel* (von Reiswitz, 1812) is one of the first formal and official war games recognized by Europeans – using specific sets of rules, complex maps, and modes for movement and battle – there were surely earlier variations and forms of war gaming. Roger Smith, a U.S. Army PEO for Simulation, Training, and Instrumentation, argues "simulations and gaming as tools of warfare has a very long history", and discusses that history from the stone to computer and personal gaming ages (Smith, 2010). He argues games like Go and chess represent war strategy, although much more abstractly than modern games involving digital graphics. In either case, players act out or simulate a potential future conflict situation or battle. Simulations outside a war context are also an excellent example of the intersect between futures and games. Ranging from flight simulators to epidemic disease simulators like *Pandemic:*

Legacy, these games allow us to enter a new context and think about (or prepare for) that context before it is our reality (if it ever is). We can explore and become comfortable with that possible situation or context, which could even be an entire future world. We see this in full bloom when we look at some of the futures games on offer from the Institute For The Future, which include *After Shock* – an alternate reality simulation game of a major earthquake hitting your city – and *Smart Grid 2025*, which seeks to create collaborative solutions to a continuously emerging energy problem (Institute For The Future, 2017). I hope to build on these explicit futures games with my game.

Further, bringing this back to the earlier discussion of powerful creative story games, and connecting it with futures, some current futures games create rich future worlds and add value to players' experiences by harnessing storytelling and story creation. *Superstruct* (McGonigal, 2008) and *World Without Oil* (Eklund et al., 2007) engaged people around the world online in exploring, researching, and sharing within specific future narratives. While I could not play either, as they are single-run games requiring online facilitation and mass participation, these showed some of the earliest explicit efforts to use games to engage people in futures thought. These games

encouraged players to create stories with more specific guidelines than a game like *Rory's Story Cubes*. While they did not fully reflect my game's core criteria (to be discussed in the upcoming core criteria section) – both had players participating in already generated future worlds – they inspired me and showed the value of collaborative storytelling in futures work.

Even more inspiring, and what became a foundation for my game, is *The Thing From The Future* or "*TFTF"* (Candy & Watson, 2014). Laying out necessary creative elements for envisioning a future – arc, terrain, object, and mood – the game empowers players to create concrete artifacts that ground their understanding and experience of a future more tangibly. When I picked up a copy from Stuart Candy in our first class together, I immediately took it home and started playing. I played with my gaming friends, with my mom, with my friend's grandparents, and more. The game enabled a great creative experience: imagining what things we might have in different future worlds. Still, the game did not fulfill my intentions. While players have some influence in shaping the future in which they will create an object, they do not actually generate their own alternative future worlds from their own minds. Further, game sessions would often fade out as we played, and most of my friends who were not that into futurism or science fiction or other

somewhat similar fields beforehand only wanted to play the game a couple times.

I wanted to create something that built on excellent games, while incorporating the best of futures practices. I wanted to create something that harnessed the power of story to recognize, explore, and generate alternative futures.

Informed Game Design Process

Although my core interpretation of games (both theoretical and in practice) is not exhaustive and probably has exceptions, it builds on previous work, and provides a foundation to move into actual game design. To recall, I think of games theoretically as having a few key elements (some relating to Huizinga's Magic Circle): voluntary, participatory, rules, goals, and enhanced freedoms. Further, in practice, my game needs to channel the power of story to recognize, explore, and generate alternative futures.

We can use this working understanding of what makes a game to inform the design process. Grasping how a game enables its aforementioned freedoms,

which can include making something possible that in theory we were always free to do – for example, we are in theory always free to disregard social norms – allows us to make empowering design decisions that act toward our game's intentions.

Critical Play shares design methods that give some worthwhile initial insights (Flanagan, 2009). Flanagan argues that every game should have underlying values goals, and that the designer should create rules to support those values. Adding to this, I believe that a game, especially one with intentions to provoke critical and futures thought, should also enable new or current competencies. Thinking in line with Flanagan, it seems the designer should create a game structure that holds true to intended values while also augmenting players' skillsets. Something about the game – maybe how it's played, what it provokes in/from players, or something else – should make the difference between people thinking and acting in a certain way outside versus inside the game context. Put simply, we want to understand what is going on differently in people's minds when playing a game, and how game design can make this happen.

Jesse Schell's *The Art of Game Design* sheds light on various leverage points in game design that could afford a desired thought and behaviour change (Schell, 2008). Schell argues that a game itself is not an experience, but rather that it can enable an experience. A game creates an essential experience – something we want players to do or feel – and there are many ways to bring this about; Schell offers over fifty different perspectives through which to think about your game while designing it (Schell, 2008). Some of the most important lenses for understanding how game design can alter people's thought and behaviour capacities and patterns are the lenses of curiosity and meaning.

The lens of *curiosity* asks the designer to explore what questions the game puts into player's minds, how the game makes players care about these questions, and how it can provoke more new questions (Schell, 2008). If a game opens new questions, and/or allows players to generate their own questions, it enhances players' critical thinking capacities and gives freedom to think about new problems, contexts, situations, solutions, and more.

The lens of *meaningful choice* encourages the designer to create an experience that feels significant and worthwhile for the player (Schell, 2008).

Flanagan writes: “the challenge, then, is to find ways to make interesting, complex play environments using the intricacies of critical thinking and to encourage designers to offer many possibilities in games, for a wider range of players, with a wide range of interests and social roles” (Flanagan, 2009, p. 261). Although creating meaning is difficult (especially when trying to create one game that is meaningful to many different audiences), it engages people in a game, which allows the game to fulfill its intentions. McGonigal highlights an advantage of games: meaning is more accessible than in real life because games give clearer goals and next steps to achieving those goals (McGonigal, 2011, p. 55). Further, as McGonigal makes clear in Part II of *Reality is Broken*, the meaning that comes in many forms – including being part of something bigger than ourselves, doing epic deeds in epic contexts, unlocking achievements, earning points for hard or creative work, and more – are generally recognized through clear in-game feedback systems (McGonigal, 2011).

So, the general question simply put becomes, what needs to work to make a game work? More specifically, I need to understand what needs to work in order to make *my* game work, as understanding how all games work is outside the scope of this MRP. If my game wants to create freedom to do

more with fewer barriers – in this case, empowering people to recognize and generate alternative futures without fearing unconventional thought – it should enhance players' capacities and shift norms. It should encourage player curiosity – put new questions into players' minds and empower them to generate and ask their own new questions – in an accessible, participatory, and safe space. It should be meaningful, which might mean it offers players new capacities in critical or creative thinking. It should engage players so that their thoughts and actions are genuine, and so they feel they had a worthwhile experience in and outside the game context.

Harnessing these ideas should help me design a game that gives freedom to think about and share unconventional futures stories, with freedom from social, economic, political, and scientific norms or assumptions. Building on these lenses, I can also create a solid foundation for my game design process, and strong criteria for evaluation.

My Game Design Process

When designing a game, it might first be important to set out a foundational design process. For my game, I will use a modified version of Mary Flanagan's

Critical Play design methods, which build on traditional iterative game design. Flanagan offers several steps, and I quote them at length because they are of great importance in understanding a thorough and intentional game design process:

> [1] *Set a design goal/mission statement and values goals.* The designer sets the goals necessary for the project to create meaningful play, and sets one or more equally weighted values goals.
> [2] *Develop rules and constraints that support values.* The game designers rough out a framework for play, including types of tokens, characters, props, etc. necessary to support the game's values and play.
> [3] *Design for many different play styles.* The designer could, for example, provide a noncompetitive type of play alongside a competitive play scenario. The designer should design for subversion of the system and other means by which play can emerge.
> [4] *Develop a playable prototype.* The idea is mocked up on paper or by acting it out during the early stages of design.
> [5] *Playtest with diverse audiences.* Designers need to get out of the studio or laboratory and play test with a wide-ranging audience, making sure to play with nontraditional gamers. Various players test the game for dead ends and dull sections, and types and levels of task difficulty.
> [6] *Verify values and revise goals.* Designers evaluate the game through the play tests and payer comments. They verify that the values goals emerge through play, and revise goals and add or drop options based on feedback to ensure an engaging game and support the project values.
> [7] *Repeat.* This process is repeated to make sure the game supports the values it set out to frame and support, as well as

provide an engrossing and playable experience. These two criteria for success must be measured in each iterative cycle.

– Mary Flanagan, 2009, p. 257-258

Figure 5. *Critical Play Game Design Model* (Flanagan, 2009, p. 257). A visual representation of Flanagan's *Critical Play* design methods, which offer a more intentional process for game design than traditional iterative methods.

Flanagan argues that the game's values are a fundamental concern, and that we should ensure a game "says the same thing" as intended from entering the design process to when people play a final version (Flanagan, 2009, p. 258).

Adding to and modifying this, fundamental to the design process are what capabilities the game enables. The game should empower players to do or think differently – in my game, specifically empowering players to recognize and generate plural alternative futures. Embedding this into the game design process should create a game more capable of achieving its objectives. As a result, I offer the following design methods, modified from Flanagan's:

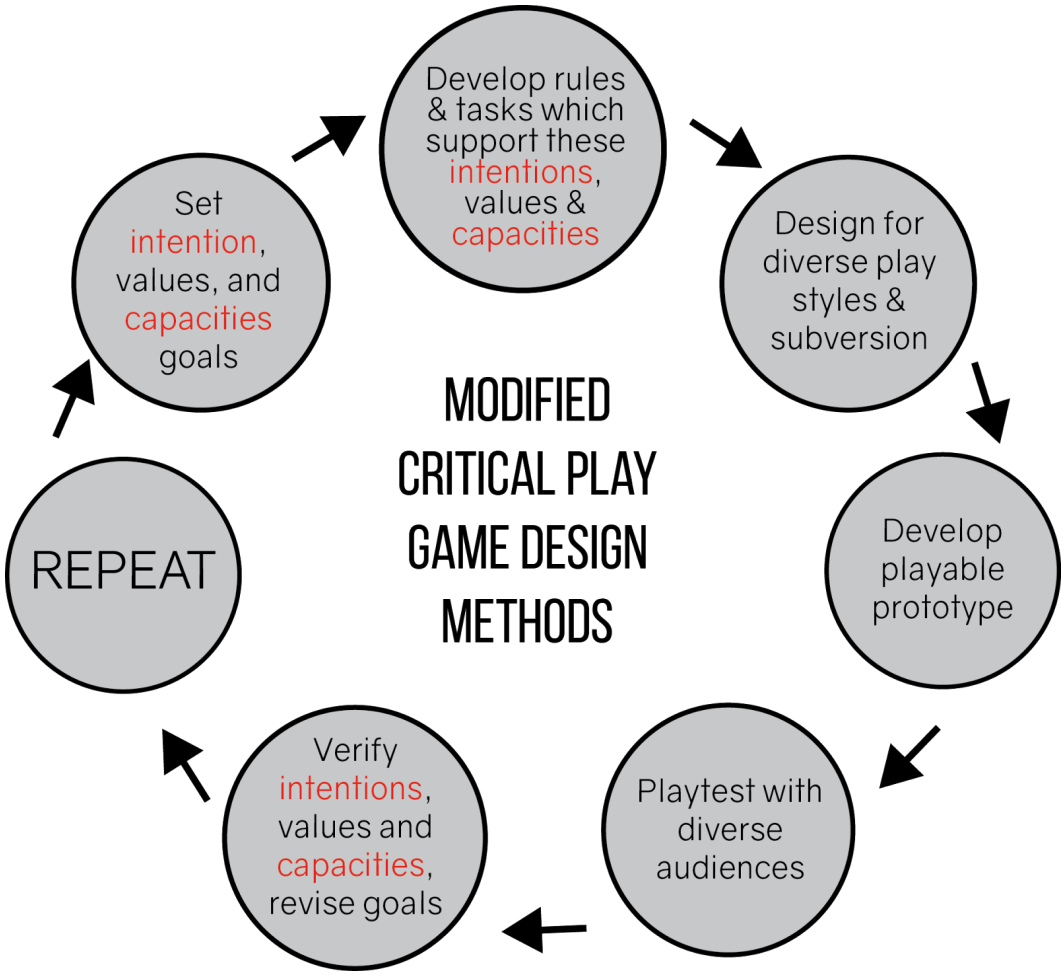

Figure 6. *Modified Critical Play Game Design Model* (modified from Flanagan, 2009, p. 257). The modified methods give importance to the capacities a game enables in players. It also replaces "design" goals with "intention" goals to clarify the game's purpose.

Designing a game with clear intentions, which relate to its values and the capacities it enables, becomes much more measurable – which is important for iterative design – and understandable using these frameworks.

My Game's Core Criteria

I break the game's core criteria into three components, as outlined in the modified critical play game design model: *intentions, values,* and *capacities*.

So, what are my game's *intentions*? The game aims to encourage people to recognize and generate alternative futures. It seems as though many futures practices and games focus on the first aspect – experts recognize, elaborate, and share alternative futures with an audience. However, not many empower the audience to create their own alternative futures. To truly achieve the plural futures goal of futures studies, we should involve more people with more diverse perspectives and experiences in generating alternatives.

What about its *values*? Core values include accessibility, a participatory nature, enjoyability, democratic inclusiveness, and safe space. If you want to engage more people in generating futures, you need to make your means of engagement accessible. The more people who can fully participate, and who feel their contributions hold value to the group, the more likely the game is to achieve its intention. When a group shapes space for people to share their ideas, and make that space feel comfortable, fun, and inclusive, these people usually feel their ideas have worth, and are more likely to contribute.

Finally, what *capacities* does the game enable to fulfill its intentions? The game needs to empower people to think differently than they normally do about futures. It enables creative critical thinking, story creation and sharing, and new modes of thought about futures – futures become a much more open and inviting concept to think about when they are free from hard judgement (removing normative barriers is crucial), allow for creative exploration, and are grounded in something tangible.

The three criteria – *intentions, values,* and *capacities* – should provide a solid foundation for evaluating whether the standard repertoire of futures scenario practices and/or games get at what I want my game to do.

Part II: Room for Improvement

Why a Game?

> "Games are: creative, collective, and social reactions to the dominant practices and beliefs of any culture."
>
> – Mary Flanagan, 2009

As recognized in the above sections, games have some special powers. A well executed game can open people to new experiences, which can provoke creative critical thought and action, and afford people freedoms they never thought possible. Games use their unique mix of real-world and game context to give people purpose and meaning. Jane McGonigal recognizes that the "real world increasingly feels like it's missing something", and games can healthily fill that void (McGonigal, 2011, p. 3).

Maybe more important to ask, though, is why someone would play a futures game (and eventually my game in particular) – what is their personal motivation? An urge to subvert current power structures and a hegemonic future may not be why people would want to play. In reality, that is a motive many people would never think about at all. My implicit assumption in designing a futures game is that people want to play games. Designing a game, rather than a new workshop tool or practice, should provoke interest and engagement from a wider segment of the general public. People want to have fun. Hopefully, the earlier games section provided compelling evidence that games can achieve these ends.

We can also ask why a *futures studies* game might be useful. The exploration of explicitly futures games in the earlier games section showed some of the potential. Further, to understand how to challenge a culture's dominant practices and beliefs – in this case, engaging people in creative critical thought around *the* vs *many* futures – we must first understand the practices currently available or in use.

Exploring current future practices, as we have explored games implicitly and explicitly involving futures, with a focus on finding practices that encourage

people to recognize and generate alternative futures, should give insight into areas for improvement.

Current Futures Studies Practices

Building on existing work, it is possible to evaluate current futures studies practices without having to experience them all. My evaluation focuses on areas of futures studies generating scenarios of futures, as this most most closely reflects my research question; recognizing and generating alternative futures is in itself essentially developing future scenarios and worlds. I have tried to create a simple method so I can evaluate the outcomes of my game along the same lines of thought.

Using an overview of scenario generation techniques from Bishop, Hines, and Collins (see appendix A) as a baseline for evaluating futures practices, and building in insights from various scholars who introduce alternative methods, we can gain a better understanding of the field. I would like to note that my goal here is not to offer many new insights into the evaluation of futures practices, nor to provide a rigorous analytical evaluation of these practices, but rather to understand futures practices relating to scenario

development in a context that applies to designing my game. As such, I picture my contribution to the field as being less through this evaluation, but rather through the game my project produces. To understand where I can add value with my game, I put forth my best effort to understand futures studies in relation to my game's core criteria.

Thus, the evaluation reflects my game's core criteria – *Intentions*: encourage people to recognize and generate alternative futures; V*alues*: accessibility, a participatory nature, enjoyable, democratic inclusiveness, and safe space; C*apacities*: creative critical thinking, story creation and sharing, and new modes of thought about futures. The evaluation asks whether current practices fulfill these criteria, or if there is space for something new (my game) to add value.

Each of these three core criteria are equally important; the product of my MRP must create valuable futures thought, and engage/empower participants fully in exploring and expressing their ideas and creative potential. If the end game I design fails in these aspirations, it needs further development.

Intentions	Values	Capacities
Empower people to recognize and generate alternative futures.	Accessible, participatory, fun, inclusive, safe space.	Creative critical thinking, story creation and sharing, new modes of thinking about futures.

Table 1. *Game Core Criteria.* My evaluation assesses current futures practices, specifically those relating to scenario development, in terms of my game's core criteria. The project needs to create something that produces valuable futures thought while also engaging its participants.

While reading about and, in some cases, experiencing the futures practices outlined by Bishop et al. (appendix A), Dator – four generic alternative futures method (2009), and Candy – experiential and guerrilla futures (2010), I tried to gather an impression of whether the practice achieved my game's criteria. I asked many questions. Do experts/the practice generate futures with which an audience engages, or do experts/the practice facilitate the audience in generating their own futures? Does the practice (or audience) recognize and produce multiple alternative futures or one future? Does the practice require specific skills or intellectual capabilities? Does it enable these in people engaging with the practice? Does it require front-end

organization and a large time investment? Does the practice inspire creativity and imagination? Does it stimulate finding new problems and solutions? Does the practice create a meaningful experience for the people it engages? Does it provoke worthwhile insights? Is it enjoyable? Is it playful? Do people want to do it again?

As I evaluated these practices, I realized experiential and guerrilla futures tend to use and build on some of the other futures scenario practices. As such, they are a bit different in nature. My game will try to leverage aspects of experiential and guerrilla futures, including their abilities to employ other practices, to produce something of value.

Current futures practice clearly have a lot of value; this evaluation is not meant in any way to suggest otherwise. The evaluation does not show whether these are excellent practices, but rather whether they work toward my game's core criteria, which could (and sometimes do) differ from those of these practices. As mentioned, the twists experiential and guerrilla futures take on these methods also offers valuable insights for my game design.

To build a game that fulfills my core criteria, I can recognize, value, and build on existing practices. I should create a model of engagement that always involves the audience in producing their own alternative futures. This reflects my intentions – recognizing *and* generating alternative futures – and values – participatory and inclusive. None of the current futures scenarios practices necessitate recognition *and* generation, nor that the generation is participatory or inclusive. Practitioners might use the methods with this in mind, but the practice itself could guarantee this outcome in its design. We have see some exemplary work in the earlier games section, like *Microscope* (Robbins, 2011) or *Rory's Story Cubes* (O'Connor, 2010). Further, experiential futures can, if used to this end, engage an audience in fleshing out future worlds through discussion, giving the possible futures a much richer context.

Next, I should work in elements from current practices that encourage production of plural futures. Most of these practices do allow for plural futures, and a few inevitably generate multiple alternatives. Through personal experience, the four generic futures method is particularly attractive because it drives participants' thought not just to plural futures, but to plural futures on diverging paths – growth, collapse, discipline, and

transform (Dator, 2009). We also see futures games doing this, such as *TFTF* (Candy & Watson, 2014).

I should design an accessible and inclusive game; it should be lightweight and enable people's capacities. Many current futures scenarios practices from event sequencing to cross-impact analysis to systems modelling do not do this. Alternatively, Guerrilla futures uses other methods to generate possible futures, and then creates spontaneous interactions that enable its audience's critical thinking without requiring them to commit or invest heavily in the process (Candy, 2010, p. 208). Additionally, games like *Nanofictionary* (Looney Labs, 2013) or *Mysterium* (Nevskiy & Sidorenko, 2015) facilitate creative thought and storytelling for people of varying abilities.

I should spark people's creativity, like backcasting does by allowing people to explore any possible future in reverse, or experiential futures does by giving creators freedom to explore and flesh out any future and make it real for participants. Games like *Dungeons & Dragons* (Wizards of the Coast, 2007) and *Kingdom* (Robbins, 2013) open creative and critical thought by allowing players narrative freedom and power – players act in, create, and share stories, even if through their roleplaying character's words and actions.

Finally, my game should enable a meaningful experience; one that is fun and that might open us to new freedoms, possibly including new modes of thought, creative critical thinking, and a safe judgement-free space. Guerrilla and experiential futures do this better than most futures scenario practices because they take hypothetical futures and make them feel real, even if they seemed absurd beforehand. They allow us to travel through time – as Candy recognized with the name Time Machine for the experiential future scenarios we staged in class – to "enliven a future scenario as a reality-in-waiting" through transmedia storytelling (Candy, 2016, p. 93). It seems as though most games I played do create a meaningful experience, or we might not have so many people playing them over and over.

With a better understanding of what futures practices relating to scenario development do well and lack, how experiential and guerrilla futures play on these methods to produce a new (and probably more engaging) way to interact with futures studies, and how games address some of the areas for improvement, I designed a game that helps people grasp the 's' in futures and generate their own alternative futures.

Part III: The Game

The Change Game

The Change Game engages players in recognizing and generating alternative futures. Further, it enables creative, critical, and futures thought. Players create, share, and discuss stories from future worlds.

To start, one player responds to an empirically true statement – a Change card – with their own Challenge Statement. For example, the Change card might say, “Some people trust other people”. To this, the player might issue the Challenge Statement, “No people trust other people” or “All people trust other people” or something more nuanced that challenges their world’s current reality as presented by the Change card. Other players use this response, along with a Future card – which outlines a general future world the player lives in – as prompts to create a story from a possible future world. The Future card is the type of world they now live in, and how far it is from today. For example, it might read “Collapse: 500 years from now”. In this case, the player lives in a world five hundred years from now in which

society as we know it has fallen apart. Players create and share stories from their respective future worlds – how did this Change in our present time lead to the future world they now live in? The story could be told, written, drawn, danced – whatever works for the player sharing it. Finally, the player who issued the Challenge Statement becomes the judge and awards the Change card to the story they liked most – the judge creates their own criteria for evaluation.

The Change Game takes two to eight players aged ten and up. Depending on how many players and how many rounds you would like to play, it could take ten to sixty minutes. Players will open their minds to new and unexpected ideas, create and share real and quirky stories, and listen to the stories the rest of their group generates.

While this section shares the final version of The Change Game for my Major Research Project (see appendix B for the first version), there is of course much room for improvement and for creation of alternative styles of play for diverse needs and intentions. I look forward to continuing to work on The Change Game, and continuing to share it with new people, to bring some of these ideas to fruition. The next sections will also discuss how I came to

create this game. As it stands, here is the final version of The Change Game for my MRP:

The Change Game

Set-Up
Shuffle the Change cards and place them facedown in the middle of the table. Shuffle the Future cards and place them facedown in the middle of the table.

Gameplay

1. The person with their birthday coming up next is the first Active Player.
2. The Active Player flips a Change card for all players to see.
3. The Active Player challenges the reality presented by the Change card with the Challenge Statement. The Challenge Statement can be simple or nuanced. For example, if the Change card says to the Active Player, "Some people eat fruit.", the Challenge Statement could be "All people eat fruit." or "Nobody eats fruit." or something else that directly challenges the reality the Change card presents. The Challenge Statement is a completely true statement as of this exact moment that represents the world's new current reality.
4. Each other player now draws one Future card, which they keep secret. This is the type of future world your story comes from, and how far that future is away from today.
5. Each other player now has about two minutes to create a story of a future world (written, drawn, acted, sung, etc.) with the known Change Statement and secret Future. Stories can be as specific or broad as you want, about yourself or others or societies or more, and do not have to have a beginning, middle, or end. Stories can be serious, funny, absurd, subversive, and more! Ideally, stories give a sense of what the future world you imagine might be like with the Change Statement and Future you have in front of you.

6. Time's up. One by one each player has about 30 seconds to share (verbally, reading, through drawing, acting, a skit, dancing, etc.) their story with the Active Player and group, revealing the Future it comes from whenever they want.
7. The Active Player places the Change card in front of the player with the top story based on the Active Player's own criteria (humour, reality, creativity, absurdity, subversiveness, thought provoking, saddest, etc.).
8. Shuffle the entire Future deck (including the cards used in the last round) and place the deck back in the middle of the table.
9. The person on the left of the Active Player becomes the new Active Player.
10. Repeat steps 2 to 10.

The Objective
The first player with 3 Change cards placed in front of them wins the game.

P.S. The entire group wins when people engage in creating, actively listening to (or watching/experiencing), and appreciating diverse stories of future worlds.

Change Cards

A Change card presents an empirically true statement.

1. Some people trust other people.
2. Some people are honest.
3. Some people have more money than other people.
4. Some people own things.
5. Some people believe a family must have a married man and woman.
6. Some people believe there are two genders.
7. Some people are married.
8. Some countries have democratic governments.

9. Some countries have communist governments.
10. Some societies use capitalism as their economic system.
11. Some people eat animals.
12. Some people eat plants.
13. Some animals have complex feelings and emotions.
14. Some people value material things more than anything else.
15. Some people grow their own food.
16. Some people drive cars.
17. Some people use public transportation.
18. Some people pray to a god or gods every day.
19. Some women have children.
20. Some animals eat humans.
21. Some people speak the same language.
22. Some people live alone.
23. Some people work at home.
24. Some people are artists.
25. Some people are nomadic.
26. Some people use electricity.
27. Some people use drugs.
28. Some people are females.
29. Some companies advertise what they offer.
30. Some people sing.
31. Some people dance.
32. Some people have formal educations.
33. Some people can read.
34. Some people have excess food and water.
35. Some people believe in an afterlife or reincarnation.
36. Some people are heterosexual.
37. Some people play sports.
38. Some people cannot move without help from others.
39. Some people have difficulty walking.
40. Some people feel excluded.
41. Some people are blind.
42. Some people work.

43. Some people have parents.
44. Some people communicate through the digital world.
45. Some animals and plants are going extinct.
46. Some people want fame.
47. Some people are free to say what they want.
48. Some people fear death every day.
49. Some people have private homes.
50. Some people believe they are better than others.

Future Cards

The Future cards base themselves on the Arc cards coming from *The Thing From The Future* (Stuart Candy and Jeff Watson, 2014). Here is an adapted explanation of the Future card:

The Future card outlines the type of future world your story comes from, and how far that future is away from today. There are four types of Futures, each an umbrella for countless possible stories:

Growth – a future in which "progress" has continued.

Collapse – a future in which society as we know it has come apart.

Discipline – a future in which order is deliberately coordinated or imposed.

Transformation – a future in which a profound historical transition (including social, economic, political, physical, and more) has occurred.

Each Future card has a type of Future, written in Black font, and a timeline, written in White font (ex. two generations from now, a few years from now, a millennium from now). The timeline is how far your Future is away from today. For example, if you choose a card with "COLLAPSE" and "A MILLENNIUM FROM NOW", your story will be about a future, one thousand years from now, in which society as we know it has come apart.

Design Choices

With my game's core intentions, values, and capacities in mind, along with a background understanding of futures studies and game design, I set off on my mission. Using the modified version of Flanagan's critical play model, I designed a game to support my important core criteria.

I had to make many explicit decisions about my game design. I see the game design as having two layers. The first is the kind of game and what mode of interaction that creates for players. The second is the various choices of mechanics within that mode of interaction. Every choice has gains and losses, and I had to constantly evaluate what made my game stronger and more capable of achieving its goals.

There are many types of games. I could have designed a board game, a video game (although I really do not have the expertise for that), an Alternate Reality Game, and more. I could have used a standard deck of cards, props,

dice, controllers, and other tools. So why did I design The Change Game as it is?

First, I made an explicit choice to operate in a face to face gaming space. The choice pulled me away from digital interfaces, and toward physical tangible social situations. On one hand, I made this decision because one of the most important aspects of The Change Game is the storytelling, along with the informal discussion it creates after official play is over. Stories seem more powerful when told in person. They also spark conversation. If the game was not face to face, stories might fall flat (especially in comparison to what is readily available in the digital world) and there would be less space for that post game conversation (people might sign off right after the game). Further, I made the decision to go face to face because I wanted to create an inclusive safe space for divergent opinions and future worlds to coexist. Unmoderated, the digital world lends itself to anonymity, and, in my experience, extreme polarization. We can easily hide in a bubble, building extreme views of people with whom we disagree, and holding on to our own ideals without exposure to or thought of alternatives. Face to face, if in a space where we can openly share ideas (which the game aims to create through mechanics discussed later), we confront our own opinions and those of others,

challenging ourselves to open up and see alternative present and future realities.

Once in the face to face gaming realm, I still had many choices for the kind of game I created and what mode of interaction that enabled. In the end, I decided to create a card game. A card game gave me as the designer a lot of freedom to enable different thought-provoking experiences. It also gave me power that I could transfer to my players. The mechanic of a card offers something of value; when someone flips a card from a deck, they are confronted with something new. Thus, they are ready to think about something new. I could transfer power to players by using that new thought (the prompt from the card) as a tool to empower players to generate their own new and independent thoughts, which would provoke discussion. Cards also heavily use the concept of *the hand*. Pulling a card into your hand makes it special. It is your card; yours to hold and yours to play. Our natural urge when we have a card is to use it. We share it with the group and gain its power or effect. I could use the card as a tool to provoke storytelling, which otherwise might be an uncomfortable or unguided experience – the card gives a reason to share ideas and stories that otherwise might go unheard.

Once I had figured out a working game type and mode of interaction for players, I moved to the second layer of the game design: the various choices of mechanics within that game type and mode of interaction. Knowing I was working with cards in a face to face context, I made specific decisions that would work to meet my game's goals.

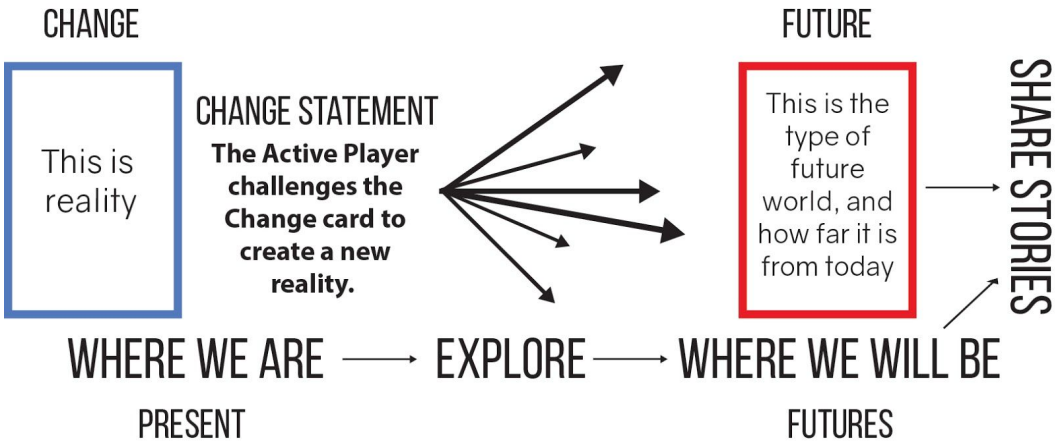

Figure 7. *Change Game Concept*. Players question something about their world. They then explore various possible paths to various possible futures depending on their Future card. Finally, each person shares their future world with the group.

Because there are futures practices and games that achieve some of these goals, I did not have to start from scratch. The four generic futures method recognizes plural alternative futures and generates them in an accessible way, and *The Thing From The Future* (*TFTF*) used this method to activate creative critical thought in its players. I embedded this into the Future card, which uses the four basic narrative structures for a story from the four

generic futures method (Dator, 2009) – growth, collapse, discipline, and transform – which are "each an umbrella for countless possible scenarios" (Candy & Watson, 2014). The Future card is a mechanic that brings about recognition, and eventually generation, of alternative futures.

However, while the Future card inherently recognizes plural alternative futures, it does not inherently engage people in generating these futures. The Future card was a good start, but I needed to design something that assures players imagine and share their *own* alternative future worlds.

I had to create a specific context for the Future card. Dunne and Raby write of speculative design as a tool for opening possibilities for discussion (Dunne & Raby, 2013, p. 2). Maybe the Future card could serve a similar role as a mechanic in my game. Rather than being a fixed entity in the player's experience (something that is fixed as part of a future scenario), players could use the cards to provoke and open new possibilities, ideas, and areas for exploration.

Dunne and Raby also write of thought experiments as a means to speculate. Specifically of interest are "counterfactuals" – where we change one thing

about a current or past world – and "what-ifs" – where we excuse ourselves from reality to entertain an unnatural idea (Dunne & Raby, 2013, p. 80 & 86). Combining these ideas, which ground exploration in a tangible real-world change, could create a novel context for the Future card. Essentially, the idea would be to propose a change to our world – ranging from realistic to seemingly absurd – that happened today, then explore what future worlds that change might lead to.

To do this, I created the Change card, which I embedded as a mechanic that challenges our present-day normative assumptions, prompting us to think differently about our world. The Change card provides an empirically true statement – something that would be difficult to argue with in itself. The player who flips this card then changes the empirically true statement to something that differs from their present reality. For example, the Change card might say "Some people pray every day". The player might change this statement to say "All people pray every day" or "Nobody prays everyday" or some other reality. The Change card alone offers a simple statement. Designing the interaction with the card as I have makes the Change card a mechanic for someone to generate change themself, alter their own present reality, push themself and others into different perspectives, and challenge

themself and others to think differently about their own values, beliefs, norms, and assumptions.

I now had two cards – the Change and Future cards – which I would need to bridge for my game to reach its goals. On the one side, the Change card challenges our present, positioning us to think about our current world differently than we would have before. On the other side, the Future card gives us a clear understanding that there are many possible futures, and a guiding hand in creating a future along one of four general paths. I needed to bring that open mindedness about the present to our futures, and encourage people to explore and elaborate the futures they think up.

With the idea of the Change card in place, we could use the Future card to encourage thought beyond the present and on toward alternative futures. The Change card essentially establishes where we are today, while the Future card provokes thought on where we will be in some time – a future world. The player mentally explores various paths (depending on the Future card in hand) from a specific starting point (a current altered reality – which may be a real reality for other people in this world) to an imagined alternative future. Because every player has a different starting context, they will think

about the Change from different perspectives. Because every player has a different Future or interprets the Future in a different way, they will end up exploring different paths forward into diverse alternative futures.

So, this is great. People are now thinking about their present differently, and connecting this on to self-generated alternative future worlds. However, it really is not great if this new thinking remains in players' heads. For people to recognize the true multiplicity of futures, critically engaging with each, they should probably engage with other people's creations as well! Therefore, I designed a mechanic that would bring these thoughts out into the game's public sphere: storytelling.

At a most basic level, once people create their own alternative future (based in the Change and Future cards), they each have an equal opportunity to share it with the group. It seems as though a compelling and engaging mechanic for this sharing, as seen in the earlier games section, is storytelling. We can elicit people's imaginations, creative and critical thought, and more through storytelling. People can create their vision of a future world, and then share it. They can share through a vivid scene, through a historical discussion backcasting from future to present, through a drawing, through

dance – whatever way someone feels comfortable sharing the essence of the future world they have created works in this game. The fundamental idea is just to create and share. Through creation and sharing we see the different possibilities every person at the table has come up with, and begin to gain this gut feeling that one specific future may not be inevitable.

We now have a basic story of the Change game. Something changes in our current world. We see a path forward and create a possible future. We tell the story of that possible future to our group. We listen to other people's stories. We recognize there are many possible futures; some of which we might detest or love, some of which might feel are completely realistic or absurd, and some of which make us smile or cry.

While this is a worthy game in itself, many people value the idea of winning in a game. Therefore, I created a scoring mechanic. While I as the designer might see the point of producing and sharing stories as being to recognize and generate alternative futures, that might not be enough for some players. Creating a simple scoring mechanic that reflects games like *Apples to Apples* (Kirby & Osterhaus, 1999) and *Cards Against Humanity* (Dillon et al., 2009) provided a solid foundation to make this really feel like a game through and

through. I also designed the scoring mechanic to help create a safe and inclusive space within the game for unusual and unsavoury ideas. The person who flips the Change card and presents an alternative reality to that written on the card becomes the judge for the round. The player does not create a story that round, but rather gives their full attention to listening to other players' stories. Once everyone has had a chance to speak, this player awards the Change card to the person whose story they thought deserved to win. What makes this exciting, inclusive, fun, and more is that the judge creates their own criteria for what deserves to win. For this person, it might be something funny or sad or stark or imaginative or real that merits the point. Because of this, all storytellers should feel comfortable sharing any sort of story – they do not know what will win that round (no story is *wrong* in the game's eyes), and so are willing to explore new ideas in new directions.

Finally, in an effort to strengthen this safe and inclusive space, I have designed the game to give equal opportunity to all players throughout. Everyone will challenge a Change card. Everyone will judge. Everyone will create stories. Everyone will have an equal chance to share their stories.

Evaluation of The Change Game

To evaluate The Change Game, I returned to my game's core criteria – *Intentions*: encourage people to recognize and generate alternative futures; V*alues*: accessibility, a participatory nature, enjoyable, democratic inclusiveness, and safe space; C*apacities*: creative critical thinking, story creation and sharing, and new modes of thought about futures. The evaluation asks whether my game fulfills these criteria, or if I need to develop it further to reach my goals.

The game should fulfill its *intentions*. The game design necessitates recognition of alternative futures – it would be challenging, boring, and probably illogical to produce the same future over and over with different Change and Future cards in play. One playtester said, "each change has a bunch of different contexts. You explore thousands of different futures". The game design also requires players to generate their own alternative futures – the game does not give you a future, you interpret the Change and Future cards as you see fit and create a future. Another playtester said, "I like taking a stab at futures. You just go for it and dive into a possible future. A change

could take many form, and the game teaches you to step into one and flesh it out".

The game should respect its core *values*. It builds on players' lived experiences through a simple rule structure, making it accessible and allowing any player to bring original visions to the group. It is inherently participatory and inclusive. Everyone has a chance to ideate and to share their ideas. The design strives to create a culturally independent game where players co-create the content. Players use the Change cards to challenge their own beliefs, assumptions, norms, and more, which means the game should provoke creative critical thought from anyone who plays. One playtester said, "the game shows different perspectives from different people on different futures". Further, the game should create a safe space. The speculative nature of the game, along with the loose criteria for evaluating people's future stories, leaves room for diverse modes of thought that subvert norms and produce unconventional results. One playtester, a teacher, said, "I think my students would feel comfortable playing this game and sharing their ideas, which is difficult to make happen when you're with a class of high school students". Everyone challenges each other's core beliefs and assumptions in a non-conflictual way. The game also explicitly makes

clear many times that people's stories can take any form: serious, funny, absurd, subversive, and more. It should be like critical play and offer a "space for permission, experimentation, and subversion" (Flanagan, 2009, p. 13). Based on players' reactions, the game also seems quite fun. One player explained their enjoyment: "The core of what's interesting about the future is change. Our assumption is we have no idea, so what's the point. This game makes it fun to think about the future".

Finally, the game should enable its desired *capacities*. As behavioural economist Daniel Kahneman notes, people do not tend to think about or grapple with futures (Kahneman, 2011), and Candy adds that when they do, they do not do it very well (Candy, 2010). As discussed in Part I of this MRP, when people do interact with or think about futures, it tends to be an extension of the present, and a future handed down to us from mainstream systems. The game empowers people to think differently than they normally do about futures. One playtester said it "exercises a muscle we don't often use. If people played many times, they'd have a language and mental map for thinking about futures. It would change our perspective; it's so rare we think beyond a few years into the future". Further, the game enables people to recognize there are many different futures, and that they can actually create

and share stories of their own imagined alternatives. It provides players a thought framework they may never have interacted with before that enables them to think about our current and future worlds in subversive and innovative ways. A playtester noted the game "dismantles things and beliefs we've taken for granted. It encourages critical thinking". Of fundamental importance to enabling this capacity is freedom. Players now have freedom to think about futures creatively while grounded in a tangible Change to their beliefs or assumptions and a real possible Future narrative. Players now have freedom from their current normative social, economic, political, and other barriers. Players are free to explore differently than many of them ever have before.

Research Process

As game design requires rapid iteration, I designed the research process to have short and potent cycles. This required playtesting with many diverse groups, interviewing players, synthesizing their feedback, and making changes for the next round of playtesting.

The standard research session was as follows: I workshopped the game with participants, and then completed brief follow-up semi-structured interviews. This would take approximately one hour for gameplay, and thirty minutes for follow-up interviews (five to ten minutes per person). As we playtested more, the game became more self-contained, and it was possible to run sessions without as much guidance on my part.

The interview (see the full interview in appendix C) sought to understand questions like these: Do participants understand the game structure? Was it fun and engaging throughout? Did the game provoke new thinking about futures? Is their gut feeling leaving the game that there really are alternative futures that could really happen outside the standard (and possibly hegemonic) tech-growth liberal western democracy future?

I asked participants questions like these (again, see appendix C for the complete interview): Could you walk me through the game? What motivated you to keep playing? What feelings did playing the game create for you? What new questions did playing the game open up for you? What came up that you hadn't thought of before? What do you think now as a result? What do you think of the idea of multiple possible futures? What do you think about your

power to shape the(se) future(s)? What do you think will happen in the future?

After the interviews, I would synthesize my notes, looking for key insights. Did the game reflect its intentions, values, and capacities? Did players understand these? Considering people's observed interaction with the game, and the questions I asked them, I would be able to make changes to the game and repeat the playtesting cycle.

Iterative Cycles

There were dozens of iterative cycles in the research process, from playing the game on my own in its most initial phase, to sharing the near-final versions with groups of strangers for feedback. Here, I share some of the game sessions, and explore the movement from the first to final version.

Figure 8. *Early Playtest*. Players discussing the future stories from the previous round in an early playtest of The Change Game. A lot of conversation and exploration of how different ideas could interplay takes place once the round officially ends.

In my initial playtests, before approval from the Research Ethics Board, I could only play with myself. Still, this proved useful. I actually went through three completely different game structures before deciding on the one we see today. The earliest forms lacked something.

Some felt too workshoppy. For example, the *Seven Generations* game I imagined involved writing on hundreds of cue-cards, following specific sequences of events, and creating a future world in a somewhat mundane,

repetitive, and semi-calculated fashion. It had several layers of trend creation and analysis, all of which felt inappropriate and unachievable for a general audience. If the game was to recognize and generate real possible alternative futures, people would need to (and would need to want to) have their laptops out and ready to research the area of focus they chose for the game. It felt like too much.

Others imbued a monofuturistic ideology. One game I thought up was a twist on *Microscope* (Robbins, 2011), and had players working together to tell a collective story of one future world. Unfortunately, the game took so long it would be difficult to expect the same group of people to play multiple times to explore other alternative futures. Further, even when I thought of variations to make the game shorter, I realized there would be an inherent issue with the game in reaching its core criteria – depending on who was playing, the game might not allow room for unheard alternative stories. For example, three people with the same upbringing and culture might outweigh a fourth person desiring space to express their own story. The Change Game offered an opportunity to take the strong elements from these initial ideas in a new direction.

Of course, in its earliest forms, The Change Game had many problems. It veered from its values, failed in its intentions, and did not always enable its desired capacities. The following paragraphs explore these failures, and my design solutions. Building on the initial version, making important tweaks and bigger picture changes, the game developed into a valuable asset in any futures studies and critical thinking toolkit. There were three key changes to the game throughout the design process.

The first important change was to the game structure around the Future card. The change improved the game's ability to empower players to recognize and generate plural alternative futures. In the initial standard version, players drew four Future cards into their hands. The intention behind this was to immediately show players that there are alternative possible futures for any Change. However, in playtesting it became apparent that giving players choice had the opposite effect on some. These players would sit comfortably in one type of Future – for example, they might choose the Growth card over and over and make every Change fit into that future narrative. Others would ignore certain narratives. Say they had two Collapse Future cards in their hand, but did not want to tell a story of, or maybe could not recognize the possibility of, Collapse – these players would limit their

hand to the other two cards, making it seem like there are only one or two Futures to which this Change could lead.

Shifting standard play to a gameplay variant – the Forced Hand style (see appendix A for the original game and gameplay variants) – alleviated this problem. Players now see and challenge the Change, which sparks initial ideas for future stories. They then draw only one Future card. Provided they draw something different than the initial idea that popped into their head, the Future card now challenges them to break their assumptions and initial leanings and explore a new (and possibly uncomfortable) narrative. Playtesters of this style recognized plural futures through this inner challenge, and also from hearing other players' diverse stories throughout many rounds of play.

Figure 9. *Storyteller*. Players listening to a funny future story in an early playtest of The Change Game. The game engaged players in many ways, which they often explicitly acknowledged, from creative critical thinking to humour.

The second major iteration to The Change Game's form related to the concept of time within the game. The change improved the game's ability to empower players in recognizing and generating real possible futures, rather than fantastical stories that diverge from productive futures thought. The initial game involved a very confusing dance with time. The idea of the Time of Change cards (which originally made a specific change event happen some time in our past) actually created a conflict with the game's intentions; it inherently produced a counterfactual past, present, and future, which runs

contrary to the game's goal of recognizing and generating alternative *possible* futures. A visual should help clarify this time issue:

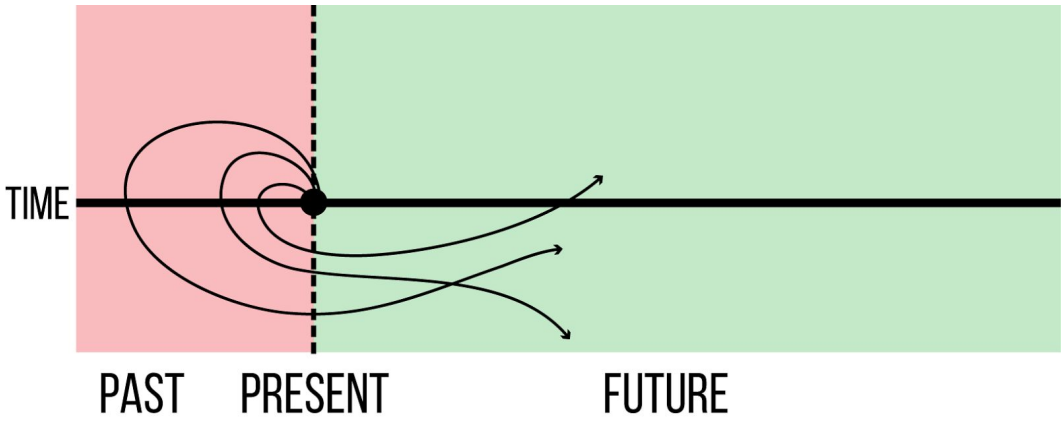

Figure 10. *The Past Problem*. The game design forced players into the past before returning to the present and diverse alternative futures. Players had to mentally recreate the past before moving into their future world, which meant their future stories based in counterfactual events.

As a player, we started in the present. The game then forced us into the past with a specific change and when it happened, which of course was fictional. The player then moved into a future to tell a story of how the world moved from a fictional past change to a future world.

A small change to the game would simplify play, reduce unnecessary and confusing cognitive load on players (moving between present, past, and future is challenging), and help it better achieve its stated intentions. Removing the Time of Change card was a valuable decision. By making the

Change a current concept, time within the game clarifies, and the game's output – stories of alternative possible futures – are *real* and *possible* even if exploring absurd or unusual concepts. Players can still base their stories in something tangible – past and current experiences – while discovering something new about a future world.

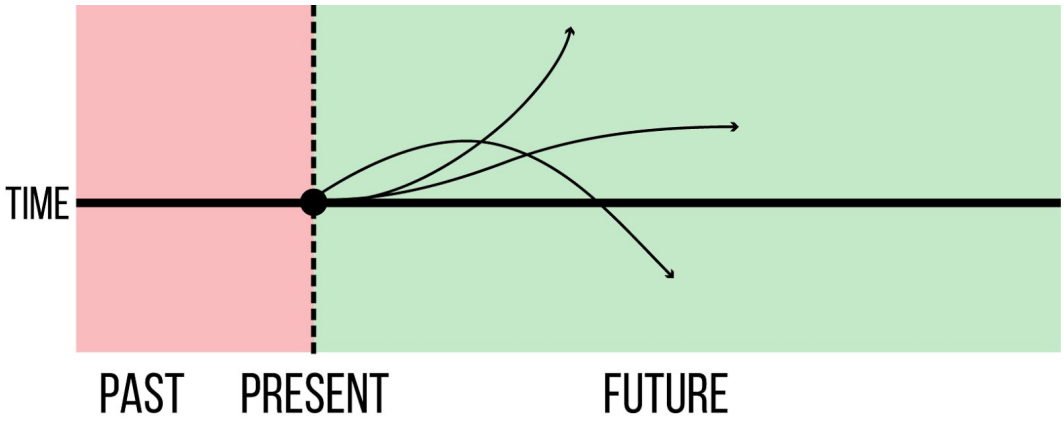

Figure 11. *The Past Problem Solution*. The game design now starts players in the present where they work toward creating diverse alternative futures. Players base their stories in real history (not complete history, of course, but that's not the game's fault), which makes their futures possible, although not necessarily probable!

The final influential shift was to empower players more fully to generate their own alternative futures. Initially, I generated almost one hundred prompts meant to challenge people's assumptions and core beliefs, and produce creative critical futures thought. However, this inherently meant that I built my bias and life experience into the game. Really, without me, there would be no game. I needed to shift the process of creating prompts for

creative critical futures thought into player's hands. Through this, the game could become culturally independent – every player or group of players could interact with it differently and challenge whatever core assumptions and beliefs they held – and fully true to its intention of players generating their own alternative futures.

I addressed this by changing a fundamental aspect of the game: the Change card. The Change card began as a specific statement I created that ran counter to reality – one that challenged what I see as a core value or belief or assumption in my society. Making the Change card into an empirically true statement, and giving players power to challenge that statement, meant that it could challenge what anyone sees as a core value or belief or assumption in their society. Rather than me determining what is shocking or thought-provoking, this enabled players to challenge themselves and each other to think from new perspectives about unimagined possible changes and futures.

Finally, through the many iterative cycles also came suggestions for alternative versions and uses of The Change Game. People from diverse backgrounds offered new applications for the work they do now or have

done in the past. A former top financial analyst at one of Canada's big banks recommended the game as an improvement to the typical activities at a corporate retreat. He also saw the game as a way to weed out people who lack creativity – if someone cannot think of any possible future world, or leave their comfort zone momentarily to explore something new, they might not be a good fit for a job requiring original thought. A Toronto educator saw the game as a fantastic way for young students (elementary to high school) to explore curriculum content from fresh perspectives. You could custom-tailor Change cards to explore concepts within specific classes, and allow students to learn through discussion and guided reflection. An undergrad student saw the value of the game in creating a safe space for discussion of controversial issues – something that has always been important in heated university environments, and she says is definitely in need at University of Toronto right now. She stressed two capacities the game enables – to challenge one's assumptions, thereby seeing an issue from a different side, and to explore previously unthought of or elaborated alternative futures – as important to bringing people together for change toward a mutually negotiated desirable future rather than polarizing them and creating a high conflict future. The Change Game clearly has many applications and possible uses, and it will be exciting to explore these as the game develops more.

Conclusions

The Value of Games in Futures Studies, & Future, Creative, and Critical Thought

> "Freedom of speech is unnecessary if the people to whom it is granted do not think for themselves."
>
> – Mokokoma Mokhonoana

While futures studies holds great value, the public does not engage with it enough. People tend to interact with futures in contexts controlled or heavily influenced by mainstream powers, whether corporate, governmental, media, or other. While people have the opportunity to think about futures themselves, they may not have the capacities (or interest) to do so in a way that generates possible alternative futures to a seemingly inevitable technocentric growth focused world. The lessons and tools of futures studies are lost on the average person.

Games bring value to futures studies because they can engage people in futures studies. They can serve the intentions of futures studies – which

include recognizing and generating plural alternative futures – as a more wide-reaching part of the discipline. We can design games that create safe space for inclusive participation in all aspects of futures studies, thereby bringing more perspectives to the table, and hopefully improving the outcomes of our work.

Further, and still a desire of futures studies, a well-designed game welcomes and emboldens future, creative, and critical thought. Games can enhance people's creative potential, and create a meaningful experience and engagement with new and difficult (therefore often untapped) forms of thinking. Games, and the discussions they breed, can challenge us to challenge our assumptions and beliefs, thereby subverting dominant power structures in our societies.

Through play, everyone – from those most pushed to the margins to those controlling the centre – can come together, create and share our own stories, ideas, and aspirations, and explore the possibilities of our infinite alternative futures.

Next Steps

At a granular level, the next steps for this Major Research Project involve launching The Change Game. A rollout plan provides a thoughtful approach to sharing the game with the world. My rollout plan focuses on three contexts that could provide traction for The Change Game.

The first method to bring The Change Game to the world is through crowdfunding. As I have designed the current version to be most palatable to a general public and gaming audience, crowdfunding could provide an excellent starting point. With a polished high fidelity version of the current game, I can create marketing content (photos, videos, etc.), and launch the project on Kickstarter. I have extensive experience on Kickstarter, having funded four projects raising over one hundred thousand dollars in the process (see Minimal Design Company and Slow Labs Co. on Kickstarter). As games continue to surge in popularity on the crowdfunding site, The Change Game is poised for success.

The second method is to bring The Change Game to a corporate or organizational context. Specifically, The Change Game could provide value in

a retreat or other less formal settings (such as an informal interview or get together). The game opens space for new modes of thought and individual expression. It gives all people equal space to share any ideas of which they think. It is an asset because it addresses a problem mentioned in *Part I: Futures Studies*; it challenges people to engage in creative, critical, and futures thought in an intertwining individual, group, and organizational context. Depending on how I modify the game for this context, it could tap more or less into these different parts of the audience's lives. To engage this audience, I plan to use my network. I have relationships with a few influential people in corporate and organizational contexts. If I can bring the game to them, and they find value in playing it, I will suggest sharing it with their organization. As the game is a standalone, they should be able to take it and play without my involvement. However, I will also offer to teach the game and facilitate early sessions if that is ideal!

The third method is to bring The Change Game to an educational context. I could custom-tailor the game to focus on content in a specific curriculum, or the game could stand as a general method for enabling and encouraging creative, critical, and futures thought from diverse perspectives about diverse aspects of students' lives. The game could improve engagement with

content, while also introducing students to fresh ways to think about what they are learning. I could easily introduce the game informally in university contexts through my friends. I think I could also formally introduce the game in high school and elementary school contexts through my relationships with teachers. Ideally, I would start by working with my contacts in independent schools to launch a pilot project. While I would want to bring the game to students in the TDSB, the bureaucratic process stifles inspiration. If the pilot succeeds in an independent school context, I could probably work to bring it to a broader audience.

While the rollout provides three directions for the game to have effect, the game itself will always need work. At a meso level, the next steps for this Major Research Project involve continually improving the game design, and adjusting it to fit diverse contexts. The more people who play the game, the more information I have available to iterate. Further, the more suggestions people make for new versions, or the more modified versions people create and play themselves for their own purposes, the better the game can work toward its goals for a larger audience.

We can therefore return to those goals: the game's core criteria. *Intentions*: encourage people to recognize and generate alternative futures. V*alues*: accessibility, a participatory nature, enjoyable, democratic inclusiveness, and safe space. C*apacities*: creative critical thinking, story creation and sharing, and new modes of thought about futures. As explored in the *Evaluation of the Change Game* section, the game does achieve its core criteria. Of course, there is always room for improvement and change as more people play in more diverse contexts.

I see three key design directions going forward from this Major Research Project. The first is to create alternative versions of the Change Game for different audiences and contexts. The second is to continuously make the game more accessible, whether that is in working on the actual game mechanics or in the explanation of the game to potential players. The third is to shift the game further away from *The Thing From The Future* specifically in relation to the Future card. Surely, more design directions will surface as the game develops and more people play.

On a higher level of next steps, for futures studies to become relevant to and practiced by more people, which seems integral to any society that wants to

address serious systemic issues before they cause serious problems, I think the field needs to take steps to making itself more appealing and accessible. The goal has already been made clear in the discipline: Slaughter calls for social foresight in a world where we embed futures thought into government, business, education, and more (Slaughter, 1996, p.10). Candy furthers this: we need to develop a "richer mental ecology… of futures-oriented thought and action", and work toward "social foresight", essentially using design, games, film, and more to give everyone the capacity for futures thought (Candy, 2010, p.315). Many of the works and scholars I have discussed in this paper have made efforts to do so, and I believe I am contributing to their effort with my game. The game serves to bring creative, critical, and futures thought into our culture, bringing the idea of social foresight closer to reality. The more people we can involve in this project and the more perspectives we can include, the better our work will be. Further, our work will better serve to balance power in our societies simply by giving voice to previously excluded people. So let's bring everyone to the table. Let's create, share, and listen to diverse ideas and stories, from the seemingly absurd to the seemingly realistic, with respect and dignity – that is a possible future I want to work toward.

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Appendices

Appendix A: Figures from Bishop et al. (2007)

Technique	*Advantages*	*Disadvantages*
1. Judgment (Genius, visualization, sociodrama, Coates and Jarratt)	Easy to do Taps into intuitive understanding of the future Genius, Coates and Jarratt – requires no special training or preparation Visualization, sociodrama – can lead to novel insights and revelations	Difficult to do well Opaque, not transparent Genius, Coates and Jarratt – relies on the credibility of the individual Visualization, sociodrama – requires some training and experience to do well; clients may resist relaxation or dramatic techniques
2. Baseline (Trend extrapolation, Manoa, systems scenarios, trend impact analysis)	Easiest for client/audience to accept because generally expected already Manoa – highly elaborated, creative, lots of detail Systems scenarios – shows dynamic relationships among scenario elements Trend impact – links events with trends	No alternative scenarios proposed Manoa, systems scenarios – futures wheel, cross-impact, and causal models require some training and experience to do well Trend impact – requires judgment to estimate impacts, best done with group of experts, perhaps using Delphi
3. Elaboration of fixed scenarios (Incasting, SRI matrix)	Easiest for client/audience participation because scenario kernels/logics are done for them Provides in-depth elaboration of alternative scenarios	Generic scenario kernels/logics might not be relevant to client/audience; therefore less buy-in SRI Matrix – many have an intuitive sense of the best-case and worst-case scenarios already; filling in the cells of the matrix with many rows (domains) might become tedious
4. Event sequences (Probability trees, sociovision, divergence mapping, future mapping)	Tells the story in the usual way, as a series of events If probabilities at each branch point are known, can calculate the probability of end-states	Probability trees, sociovision – events/branch points usually do not follow each other in a fixed sequence Divergence mapping – events are not always easy to classify according to time horizon Future mapping – pre-defined end-states and events might not be relevant to the client/audience
5. Backcasting (Horizon mission methodology, impact of future technologies)	Creative because it decreases the tendency to extrapolate the future based on the past and the present; therefore can provide new insights Also results in a sequence of events or breakthroughs	Fantastical nature of the mission or end-state might reduce buy-in for client/audience Impact of Future Technologies – process for developing signposts and recommendations still opaque
6. Dimensions of uncertainty (Morphological analysis, field anomaly relaxation, GBN, option development and option evaluation, MORPHOL)	Best for considering alternative futures as a function of known uncertainties GBN –the right mix of technical sophistication and ease of use for a professional audience OD/OE – allows for the calculation of consistency among different combinations of alternatives (scenarios) MORPHOL – allows for the reduction of scenario combinations by the exclusion and likelihood of some pairs of alternatives; also allows for calculating the probabilities of different scenarios if the probabilities of the alternatives are known	Less creative because may not consider some novel developments that are not currently considered uncertain GBN – almost impossible to fully characterize the uncertainties of the future with just two dimensions OD/OE, MORPHOL – almost impossible to make valid estimates of the compatibility or influence of all alternatives against all other alternatives
7. Cross-impact analysis (IFS, SMIC-PROB-EXPERT)	Calculates the final probabilities of alternatives or end-states based on rigorous mathematical procedure SMIC – adjusts the matrix of conditional probabilities for consistency with the laws of probability IFS – allows for quantitative analysis of alternative future values of important variables	Almost impossible to validly estimate the conditional probabilities or impacts of all alternatives against the others
8. Systems modeling (Sensitivity analysis, dynamic scenarios)	Creates the best quantitative representation of continuous variables that describe the future state	Difficult to validate the models without complete historical data

Figure 1. *Advantages and disadvantages of the futures scenario techniques* (Bishop et al., 2007, p. 20). Bishop et al.'s thorough exploration of current futures practices shares advantages and disadvantages to each, which prove useful in the evaluation.

Technique	*Starting point*	*Process*	*Products*
1. Judgment			
Genius	Personal information	Thinking, imagining	One or more scenarios
Visualization	Personal information, unconscious ideas, values	Relaxation, stimulation of imagination	One or more scenarios
Role playing	Personal information, unconscious ideas, values	Act out one or more pre-arranged conditions	One or more scenarios
Coates and Jarratt	Personal or team information	Define domain and time horizon, identify conditions or variables of interest, develop scenario themes, estimate values of conditions and variables under each scenario theme, write the scenarios	Four to six scenarios
2. Baseline			
Manoa	Dominant trends	Implications, cross-impacts, elaboration	Elaborated baseline scenario
3. Elaboration of fixed scenarios			
Incasting	Multiple scenario logics	Elaboration on specific domains	Elaboration of multiple scenarios
SRI	Multiple scenario logics	Specific domains in rows	Elaboration of multiple scenarios in specific domains
4. Event sequences			
Probability trees	Branching uncertainty or choice points	Sequence, assign probabilities	Probability of end states
Sociovision	Branching uncertainty or choice points	Cluster similar alternatives into macro themes	Multiple scenarios
Divergence mapping	Multiple potential events	Place on one of four time horizons, link events in sequence	Multiple future histories
Future mapping	Multiple end states, many potential events	Sequence events to create end state	Future history
5. Backcasting			
Backcasting, horizon mission methodology	One or more end states, can even be fantastical	Steps that could lead to that end-state	Ideas for near-term work or investment
Impact of future technologies	Technology themes	Highly capable scenarios, signposts leading to scenario, cost/benefit	Contingent strategies to pursue given the occurrence of signposts
6. Dimensions of uncertainty			
Morphological analysis, field anomaly relaxation	Dimensions of uncertainty	Multiple alternatives for each dimension, link one alternative from each dimension	Multiple end states as combinations of one alternative from each dimension
GBN	Driving forces, two dimensions of uncertainty	Select two most important and most uncertain, create 2 × 2 matrix, title and elaborate	Four mutually exclusive scenarios
Option development and evaluation	Dimensions of uncertainty	Multiple alternatives for each dimension, rate consistency of every alternative against every other alternative, perform nearest neighbour calculation	Ranking of combinations of alternatives from most to least consistent
MORPHOL	Dimensions of uncertainty	Multiple alternatives for each dimension, link one alternative from each dimension, excluding impossible combinations and rating more likely combinations more highly; can calculate probability of combination of probabilities of	Multiple end states as combinations of one alternative from each dimension, based on exclusions and likelihood of pairs of alternatives; can calculate probability of combination of probabilities of alternatives are known

(*Continued*)

Technique	*Starting point*	*Process*	*Products*
7. Cross-impact analysis			
Cross-impact analysis	Potential future events or end states	Initial probability of each, contingent probabilities of each given the occurrence of each other, Monte Carlo simulation	Final probabilities of each event or end state
IFS	Variables of future ends states	High, medium, low values of the variables, initial probability of each range, cross-impact of ranges from different variables on each other, Monte Carlo simulation	Final probabilities of each range of each variable
SMIC PROB-EXPERT	Potential future events or end states	Initial probability of each, contingent probabilities of each given the occurrence of each other, correction of contingent probabilities for consistency, Monte Carlo simulation	Final probabilities of each event or end state
8. Modelling			
Trend impact analysis	Trend, one or more potential future events	Estimate impact of event on trend – time of initial impact, max impact, time of max impact, time of final impact	Adjusted trend values
Sensitivity analysis	Systems model with boundary conditions	Enter multiple plausible values for each uncertain boundary condition, possibly Monte Carlo simulation	Range of plausible outcome variable
Dynamic scenarios	Dimensions of uncertainty	Build system model for each dimension, combine into one overall model	Dynamic behavior associated with each scenario

Figure 2. *Comparing starting points, process and products of the futures scenario techniques* (Bishop et al., 2007, p. 18-19). Bishop et al. offer an invaluable understanding of many futures practices. “Process” directly relates to accessibility (complexity), model of engagement, and creative potential – certain structures might inhibit imagination while others expand it. “Products” relates to the practice’s plurality of futures.

Appendix B: The Change Game | Version One

Contents
1 Change Game Manual
93 Change Cards
7 Time of Change Cards
24 Arc Cards

Set-Up
Shuffle the Change cards and place them facedown in the middle of the table.
Shuffle the Time of Change cards and place them facedown in the middle of the table.
Shuffle the Arc cards and deal 4 facedown to each player.
Put the Arc deck facedown in the middle of the table.

Gameplay
1. The person with their birthday coming up next is the first Active Player.
2. The Active Player flips a Change card from the top of the shuffled Change deck for all players to see. This is what has changed.
3. The Active Player flips a Time of Change card from the top of the shuffled Time of Change deck for all players to see. This is when the Change card happened.
4. Each other player chooses an Arc card from their hand in secret and puts it face down in front of them. This is the type of future world your story comes from, and how far that future is away from today.
5. Each other player now has about two minutes to create a story of a future world (written, drawn, acted, sung, etc.) with the known Change and Time of Change cards, and secret Arc. Stories can be as specific or broad as you want, about yourself or others or societies or more, and do not have to have a beginning, middle, or end. Stories can be serious, funny, absurd, subversive, and more! Ideally, stories give a sense of what the future world you imagine might be like with the Change, Time of Change, and Arc you have in front of you.

6. Time's up. One by one each player has about 30 seconds to share (verbally, reading, through drawing, acting, a skit, dancing, etc.) their story with the Active Player and group.
7. The Active Player places the Change card in front of the player with the top story based on the Active Player's own criteria (humour, reality, creativity, absurdity, subversiveness, thought provoking, saddest, etc.). Everyone except the Active Player draws another Arc card.
8. Shuffle the entire Time of Change deck (including the card used in the last round) and place it back in the middle of the table.
9. The person on the left of the Active Player becomes the new Active Player.
10. Repeat steps 2 to 10.

The Objective

The first player with 3 Change cards placed in front of them wins the game.

P.S. The entire group wins when people engage in creating, actively listening to (or watching/experiencing), and appreciating diverse stories of future worlds.

Cards

Change Cards

A Change card is something different about our current world.

1. You can't own anything.
2. All people are nomadic.
3. There are no genders.
4. There is no electricity.
5. Humans cannot go outside.
6. Everyone works where they live.
7. Everyone is vegetarian.
8. Humans are carnivores.
9. You have to grow your own food.

10. There are no cars.
11. Everyone wears a uniform.
12. We know all animals have emotions and feelings.
13. Plants are sentient.
14. All living things speak the same language.
15. There are no drugs.
16. All drugs are legal.
17. Google is president-elect of the USA.
18. There are no religions.
19. North America is a Pan-African Colony.
20. World War IV is happening right now.
21. No person is involuntarily homeless.
22. No state practices democracy.
23. Men earn an average of 75 cents for every dollar earned by women in the same job.
24. Communism is the dominant form of governance globally.
25. Anarchy is the dominant form of governance globally.
26. There are no weapons.
27. Humans cannot kill each other.
28. Everyone is nice to each other.
29. Everyone is completely honest.
30. All wealth is distributed equally amongst all people.
31. Money has no value.
32. Prices include social, environmental, and other negative externalities.
33. Humans can only move when with another person.
34. Humans can only move with help from machines.
35. Humans are not at the top of the food chain.
36. There is a complete and total surveillance system.
37. There are only females.
38. First Nations and Inuit have full control over the Canadian government and lands.
39. All food comes from laboratories.
40. There are no plants.
41. Humans are the only animals.

42. All babies are separated from their parents at birth.
43. There is free universal healthcare worldwide.
44. Everything is trade/barter system based.
45. Humans do not label each other except by name.
46. Artificial intelligence seamlessly interacts with and as human life.
47. Everyone is blind.
48. Everyone is deaf.
49. Everyone is mute.
50. Humans typically find a new mate every year.
51. Advertising is illegal.
52. There are no brands.
53. There is no music.
54. People dance instead of standing or sitting still.
55. There are no stock markets.
56. Males carry babies instead of females.
57. All people have a guaranteed income.
58. Decision-making by consensus is mandated by law.
59. There are no states.
60. There are no nations.
61. Humans live only in the moment.
62. Humans are extinct.
63. Humans don't need to work.
64. All travel between countries is banned.
65. Virtual reality has supplanted physical reality.
66. Everyone is playing an interconnected 2D video game all day every day.
67. All food tastes exactly the same.
68. We eat a nutrition pill once per day for all food needs.
69. Families are made by choice, not procreation.
70. We know there is at least one God.
71. People can die temporarily and come back to life at a desired time.
72. The afterlife is an actual place.
73. All countries use the same currency.
74. We interact regularly with intelligent extraterrestrial life.

75. Sports fully replace war.
76. We have to carry a personal potable freshwater tank.
77. Fresh water is only available to 5% of the global population.
78. Water replaces money.
79. Everyone has mandatory physical and cultural activity sessions each day.
80. There is no art.
81. There is no formal education.
82. Education is mandatory until the age of 25.
83. Humans cannot read.
84. Humans are perfectly rational beings.
85. We can transfer our consciousness into computers.
86. Every person has a different set of 4 out of 5 senses.
87. We have a sixth sense.
88. Humans can consciously manipulate and interact through more than 4 dimensions.
89. Everyone has free access to enough food and water to survive.
90. There are no inalienable human rights.
91. There are only collective and group, not individual, rights.
92. Humans don't need sleep.
93. Food production cuts to 20% of current levels.

Time of Change Cards

Time of Change cards tell you when the Change card happened.

There are 7 types of Time of Change cards:

A Few Years Ago
A Decade Ago
A Generation Ago
Two Generations Ago
A Century Ago
A Millennium Ago
Forever

Arc Cards
The Arc cards come from *The Thing From The Future*, a game by Stuart Candy and Jeff Watson (2015). Here is an adapted explanation of the Arc card:

The Arc card outlines the type of future world your story comes from, and how far that future is away from today. There are four types of Arc, each an umbrella for countless possible stories:

Growth – a future in which "progress" has continued.

Collapse – a future in which society as we know it has come apart.

Discipline – a future in which order is deliberately coordinate or imposed.

Transformation – a future in which a profound historical transition (including social, economic, political, physical, and more) has occurred.

Each Arc card has a type of Arc, written in Black font, and a timeline, written in White font (ex. two generations, a few years, a millenium). The timeline is how far your future is away from today. For example, if you choose a card with "COLLAPSE" and "A MILLENNIUM", your story will be about a future, one thousand years from now, in which society as we know it has come apart.

There are 6 of each type of Arc card, and will be 12 of each card in the final version of the deck.

Gameplay Variations
Gameplay variations made available for *The Thing From The Future* (Situation Lab, 2017) guided me in coming up with some useful initial variations:

#TheCreatorClass

Useful for: A creative group exploring changes outside the realm of, or more specific than, those The Change Game offers.
Gameplay: Players create their own changes rather than using a Change card. Replace step 2: instead of flipping a change card, the Active Player writes their own change card.

Purposed Play
Useful for: An organization aiming for specific outcomes from the game, such as realistic future worlds in which they may have to work.
Gameplay: The group discusses the criteria for evaluation before playing. They can have a clear rubric or framework for evaluation, which could lead to more useful outcomes for their context.

Custom Play
Useful for: Groups who want to address specific challenges or questions.
Gameplay: Whoever facilitates the game picks and/or creates specific Change cards to fill the deck (every six cards are half an hour of play).

Big Teams
Useful for: larger groups aiming for collaborative future generation.
Gameplay: Each player is now a group of 3-5 people. Once the groups see the Change and Time of Change card, they separate, choose an Arc card in secret, and create a skit showing their alternative future.

Headbands/Blind Poker
Useful for: people seeking fluency in futures studies terms, especially the four generic futures.
Gameplay: The Active Player draws one Arc card, and puts it on their own forehead without looking. They then flip a Change and Time of Change card for everyone to see. The other players collaboratively tell a story of a future world that fits the Arc card on the Active Player's forehead. Once the story ends, the Active Player guesses which type of Arc card they had on their forehead!

Co-Op
Useful for: Groups looking for collaborative engagement without any competitive aspects.
Gameplay: Nobody has Arc cards in their hands. Once the Active player flips the Change and Time of Change card, the group works together to create as many story headlines (think newspaper headlines, or one-liners) as possible within the four Arc categories. After 3-5 minutes, the group can choose to flesh out certain stories in more detail.

Cross Pollination
Useful for: People who want to challenge others to think outside their usual perspective.
Gameplay: Instead of choosing your own secret Arc card, you choose one for the player to your left. They now generate an alternative future story with your Arc card.

Forced Hand
Useful for: People who want to be forced into uncomfortable thinking positions.
Gameplay: Instead of drawing four Arc cards into your hand, you draw one Arc card each round after the Change and Time of Change cards have been flipped. You now have to tell a story of a future that fits the one Arc card you drew.

Appendix C: Semi-structured Interview

Follow-Up Semi-Structured Interview
Date: January 30th, 2016

Project Title: "A Critical Game for Recognizing & Generating Alternative Futures"

Principal Investigator:
Andrew Luba
OCAD University

Faculty Supervisor:
Dr. Stuart Candy
Faculty of Design
OCAD University

Remind Participant:
Thank you for voluntarily participating in this research. Remember, you can withdraw consent at any time before data analysis (estimated to be in late February, 2017) and stop participating without any consequence from the researcher or OCAD University personnel. You do not have to answer all or any of the following questions.

Your responses will not be confidential, but will not be associated with your name in any publications -- the results of the questions will be analyzed and synthesized, and participant identifiers will not be linked to the results when discussed in future papers or presentations, or will be replaced with pseudonyms. You can also let me know now if anything came up during gameplay that you would like to be excluded from the research.

Again, you do not have to answer all or any of my interview questions if you don't want to!

Question Themes:

Game Walkthrough

Research Questions (not said to participant)	**Example Questions (said to participant)**

Do participants understand the game structure? Game rules? Game objectives/goals? Are these understandings what I intended? Did gameplay feel meaningful and challenging? Was it fun and engaging throughout? What was the spirit of the game (competitive, cooperative, other)?	● Could you walk me through the game? ● How did it start? ● What was the point? ● What was the essential experience (for example, the essential experience of a car racing game might be feeling like you're in and controlling a car driving super fast)? ● How did the game end? ● How did you interact with other players? ● What motivated you to keep playing?

Imagination, Creativity, Futures

Research Questions (not said to participant)	**Example Questions (said to participant)**
Do the players leave the game feeling there are plural futures? Do they feel they can generate futures? Did the game provoke new thinking about futures? Did it provoke thinking on alternative futures to those they'd been exposed to or thought of before?	● What feelings did playing the game create for you? ● What new questions did playing the game open up for you? ● What came up that you hadn't thought of before? ● What do you think now as a result? ● What do you think of the idea of multiple possible futures?

Is their gut feeling leaving the game that there really are alternative futures that could really happen outside the standard (and possibly hegemonic) tech-growth liberal western democracy future?	• What do you think about your power to shape the(se) future(s)? • What do you think will happen in the future?

Do you have any other thoughts or comments?

Thank you for participating in this research study! Please feel free to follow up with me later with any questions or with interest in seeing the final research project.

Appendix D: Annotated Bibliography

Futures Studies

Bell, W. (1997). The purposes of futures studies. The Futurist, 31(6), 42–46.

Bell outlines what he sees as the major purposes of futures studies. Of great importance in all these purposes is imagination and creativity, thinking about the present and futures in new and different ways, and questioning our realities.

Bell, W. (2003). Foundations of Futures Studies, Volume 1: Human Science for a New Era. Transaction Publishers.

As expected, Bell explores the historical foundations of futures studies, along with the foundational role of the futurist. Bell also notes the lack of futures understanding in our education systems and youth (which of course transfers on to older age), and the potential effects of this. Building my foundational understanding of the field and the futurist enhanced my insights into where a game could create value for futures studies and its goals.

Bishop, P., Hines, A., & Collins, T. (2007). The current state of scenario development: an overview of techniques. Foresight - The Journal of Future Studies, Strategic Thinking and Policy, 9(1), 5–25. https://doi.org/10.1108/14636680710727516

The authors present a comprehensive exploration of current scenario techniques focusing on those trying to engage users in deep creative thought about multiple possible futures. They consider the advantages of various techniques, while also categorizing them. The invaluable understanding offered by the authors informs my jump away from traditional techniques. How can I incorporate advantageous elements, while creating something that might be more accessible and engaging?

Bleecker, J. (2009). Design Fiction: A short essay on design, science, fact and fiction. Near Future Laboratory. Retrieved from http://drbfw5wfjlxon.cloudfront.net/writing/DesignFiction_WebEdition.pdf

Bleecker introduces the thought and question-provoking field of design fiction, a mix of science fact, science fiction, and design. The

author highlights the ability of science fiction to create possibility, and values the exploration of plural alternative futures to the "up and right" future dominating mainstream conversation. Bleecker inspires me to bring elements of design fiction into my game to provoke more questions and exploration of diverse alternative futures.

Bradbury, R. (1984). The Toynbee Convector.
Bradbury's story urges us to recognize that our ideas of futures shape our futures. When we concretely flesh out an idea, we create a real possibility that all of us can reach toward. So, I ask, why not create more possibilities of future worlds we can strive toward?

Borrows, J. (2008). Seven Generations, Seven Teachings: Ending the Indian Act. National Centre for First Nations Governance. Retrieved from http://fngovernance.org/resources_docs/7_Generations_7_Teachings.pdf
Borrows writes of Canada's *Indian Act* and its dominance over First Nations life for the last seven generations. Borrows also notes the importance of the seven generations concept in First Nations culture – decisions should be made thinking about the impact in seven generations time. I am curious as to why we never studies futurism in this context or any other Indigenous context.

Candy, S. (2010). The Futures of Everyday Life: Politics and the Design of Experiential Scenarios. Retrieved from https://www.researchgate.net/publication/305280378_The_Futures_of_Everyday_Life_Politics_and_the_Design_of_Experiential_Scenarios
Candy encourages a more widespread futures practice, in which more people elaborate unthinkable alternative images and visions to decolonize futures. The author shares many futures studies tools and methods, while exploring ways to make the field more accessible, engaging, and critical thought-provoking. Candy offers an excellent foundation of futures knowledge and tools, a deeper understanding of experiential and guerrilla futures, along with leads for further exploration of tools, games, and game design.

Candy, S. (2016). "Show and Tell." The World in 2016. London: The Economist, p. 93.
Candy explores the experiential futurist's role in improving people's understandings of different possible futures. Candy

argues that more people engaging with and generating alternatives could empower us to create a more preferable world.

Candy, S. (2016). Gaming futures literacy: The Thing From The Future. To appear in Riel Miller, Ed. (2017, Forthcoming). Transforming the Future: Anticipation in the 21st Century. Routledge.

Candy presents insights into designing games with intention, specifically focusing on his game, The Thing From The Future, which attempts to enhance futures literacy and make futures studies more widespread, accessible, and engaging. Candy's game enables concrete thought about futures, making futures more available for people to explore, think about, and feel. The article gave leads to other games worth playing, and also shows a concrete example of what my project is trying to accomplish.

Cornish, E. (2004). Futuring: The Exploration of the Future. World Future Society.

Cornish highlights the rapid complex change happening in society today, and points to futuring as a way to navigate that change. Cornish's futuring holds most similarities to strategic foresight: using scientific tools and methods to understand what possible and probable futures might lie ahead, and finding our way to a preferable future.

Dator, J. (2009). Alternative Futures at the Manoa School. Journal of Futures Studies, 14(2), 1–18.

Dator recognizes the importance of systematic thought in planning for, and moving toward, a preferable future. The article explains necessary components for futures thought, and dives deeper into the four generic futures technique, which allows people to generate images of a plurality of futures, while also experiencing them. Dator's narrative-based technique provides a strong building-block for a narrative-based game about futures.

Dator, J. (2007). Caring for Future Generations.

Dator recognizes a rapid increase in the pace of change for humanity. He encourages us to be more accountable to future generations (all future generations, not just humans) by trying to understand what future needs might be and how we might

address them, while embedding these thought processes into our decision-making.

Dator, J. (n.d.). Society as a Social Invention and You as a Social Inventor.
Dator argues that the world around us is a social invention/construct. A social inventor can change and shape these constructs. We can do this by understanding what is happening around us, and by engaging in creative divergent thought – with courage to fail and be different – that opens alternative possibilities rather than closing them. I hope my game will open alternative possibilities, breed new ideas, and create unthinkable connections that only divergent thought can bring about.

Dator, J. (1995). What futures studies is, and is not. Retrieved from http://www.futures.hawaii.edu/publications/futures-studies/WhatFSis1995.pdf
Dator highlights the importance of recognizing the lack of omniscience in futures studies. We cannot predict what the future will be; to try to do so is faulty. However, it is worth exploring various possible, probable, and preferable futures, especially the most ridiculous ones. Dator's simple and clear insights offer a valuable starting point for the intention of my game.

Dick, P. (1978). How to Build a Universe That Doesn't Fall Apart Two Days Later.
The piece suggests we shape much of our understanding of reality. Further, we can shape other people's realities through the information we present to them, and the way we do it. With this in mind, reality becomes a much more flexible concept; one with which a game can play to encourage novel thought.

Dunagan, J. (2012). Massively Multiplayer Futuring: IFTF's Foresight Engine. Journal of Futures Studies, 17(1), 141–150.
Dunagan suggests a need to find and study alternative futures images. If these aren't accessible, Dunagan urges us to create tools that make them accessible. The article focuses on Dunagan's Foresight Engine, which presents a large online group of people a future scenario, engages those people in thought about that scenario, and encourages them to share their responses. They can then build on each other's responses, creating a collective

understanding and representation of that future image. The scalable and participatory aspects of the tool/game make it different than most mainstream futures studies tools.

Duncombe, S. (2007). Dreaming Up New Politics: thinking differently in an age of fantasy. In These Times.

Duncombe writes of the importance of participation in politics and change. If we can open a space for people to participate – rather than hammering people with ideas, stories, information, and more from a top-down perspective – they can produce their own ideas and narratives in that space. The same seems true for futures. Opening spaces for participation, rather than simply telling people what different futures might look like, engages people more fully and generates novel outcomes. I hope my game can create a space that encourages alternative future visioning.

Dunne, A., & Raby, F. (2013). Speculative Everything: Design, Fiction, and Social Dreaming. MIT Press.

This work has been particularly influential for me. Dunne and Raby introduce the idea of speculative design, which is essentially design to speculate on how things could be. It means to create space for imaginative critical discussions and debate on alternative presents and futures. The text questions the differences between, and value of, reality and fiction, recognizing importance of each in proposing and shaping desirable worlds. Dunne and Raby also surface thought experiments as a means to excuse ourselves from reality and explore alternatives – there is great story *making* potential here. Although I won't design in the sense Dunne and Raby promote, speculation holds great value in generating alternative futures. Designing a game based on principles like this – creating space for imagination, discussion, and storymaking – could be very valuable in my research endeavours.

Galtung, J., & Inayatullah, S. (1997). Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change. Praeger.

The text explores social change through a macrohistory lens. It dives deeper into many prominent thinkers' works, theories, and philosophies, trying to gather a rich understanding from many different ages and perspectives, including non-western ones we

often exclude. These ideas, directly or indirectly, inform how we think about futures today.

Inayatullah, S. (1998). Macrohistory and futures studies. Futures, 30(5), 381–394.

The article draws on Inayatullah and Galtung's *Macrohistory and Macrohistorians* (above), directly tying it to futures studies. Inayatullah notes that futures studies as we understand it today exists within a specific frame of macrohistory, and understanding this context is important to understanding and building on futures studies.

Inayatullah, S. (2008). Six pillars: futures thinking for transforming. Foresight, 10(1), 4–21. http://doi.org/10.1108/14636680810855991

Inayatullah explores new ways to think about futures, highlighting the value of futures studies in empowering people to create a preferable world. Of great interest to me is the concept of alternative futures. Inayatullah writes of creating alternative futures, which I intend to have as a central focus of my game.

Mau, B., Leonard, J., & Institute Without Boundaries. (2004). Massive Change. Phaïdon.

The text argues that design, integrated into all disciplines, can work to create a preferable future. Unfortunately, this future, *the* future, is fairly specific and reaffirming of mainstream understandings of futures – it focuses on new technologies generating a continued growth-based narrative for humankind. The fact that at least 29 of 32 experts interviewed for the text are white, 24 are men, and 28 appear to be over the age of thirty-five suggests the authors may have wanted to reach further to find, explore, and share alternative visions of futures.

Nandy, A. (1996). Bearing witness to the future. Futures, 6–7(28), 636–639.

Nandy calls for scepticism regarding mainstream futures. We need to share a plurality of dissenting visions that subvert hegemony.. The challenge the article issued me is to design a game that empowers people to use futures studies and exploration as a vehicle of self-expression, thereby decolonizing our futures.

Niedzviecki, H. (2015). Trees on Mars: Our Obsession with the Future. Seven Stories Press.

Niedzviecki urges us to critically think about a possibly unhealthy relationship with the future. In some ways, the book is a critique of futurism in general, but when read with a more acute understanding of futures studies, it becomes apparent Niedzviecki has major problems with mainstream futurism – one technocentric future that humans race to dominate and own. The author questions this paradigm, and the notion of hoping for a preferable future. Niedzviecki comes to the conclusion that human society as we know it is slowly collapsing, and that we should strive for meaning in our lives rather than hope for some sort of rapid utopic change. The question for me becomes what is a meaningful life, and would humans striving for meaning inherently lead to preferable futures.

OCAD University. (2017). Strategic Foresight and Innovation (MDes). Retrieved January 16th, 2017, from http://www.ocadu.ca/academics/graduate-studies/strategic-foresight-and-innovation.htm

My first exposure to the concept of futures studies was through my masters program's online description. I've learned a lot since then!

Organization for Economic Cooperation and Development. (2015). Futures Thinking In Brief. Retrieved October 25, 2015, from http://www.oecd.org/site/schoolingfortomorrowknowledgebase/futuresthinking/futuresthinkinginbrief.htm

The OECD provides a brief summary and explanation of futures studies, highlighting its importance in creating desirable futures. I find it both reassuring and unsettling when large organizations become involved in a dynamic area of research like futures studies.

Sardar, Z. (1993). Colonizing the future: the "other" dimension of futures studies. ResearchGate, 25(2), 179–187. https://doi.org/10.1016/0016-3287(93)90163-N

Sardar writes of a hegemony within futures studies. The article investigates the Western white male domination of futures studies, and the possibility that futures studies aims to shape the world into one desirable/preferable for this privileged group. By

excluding "other" people, the field limits itself and is unable to serve its theoretical objectives of opening critical discussion and debate involving diverse divergent opinions and perspectives. Sardar sees futures studies as becoming a tool to extend Western domination, and to enable colonization of the future.

Sardar, Z., Boxwell, G., & Inayatullah, S. (2003). Islam, Postmodernism and Other Futures: A Ziauddin Sardar Reader. Pluto Press.

Boxwell and Inayatullah bring together a fantastic and insightful selection of Sardar's works on futures and future colonization. The works in the first section, which were most pertinent to my research, navigated the history of futures studies, seeking to expose a hegemony within the field and of the future as a concept. Sardar calls for us to question dominant narratives within our societies and to change futures by opening ourselves to a plethora of futures (not just a hegemonic western liberal democracy capitalist vision).

Slaughter, R. A. (1996). Futures Studies: From Individual to Social Capacity. Futures, 28(8), 751–762. https://doi.org/10.1016/0016-3287(96)00009-2

Slaughter offers four layers through which we can progress futures studies to a fifth social level, which he calls social foresight. At this point, futures thought is embedded in our everyday lives as part of culture, business, education, government, and more. A game serves to these ends, making futures thought part of our everyday life experiences (such as sitting around the table with friends and playing a card game!).

Slaughter, R. A. (2003). New Thinking for a New Millennium: The Knowledge Base of Futures Studies. Taylor & Francis.

Slaughter provides an extensive and thorough foundation text for futures studies, bringing together works from many prominent pioneers and thinkers in the field. I found the earlier works by Bell, Ogilvy, and Dahle particularly useful for bolstering my foundational understanding of futures studies.

Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. Decolonization: Indigeneity, Education & Society, 1(1). Retrieved from http://decolonization.org/index.php/des/article/download/18630

Tuck and Yang's article is an extremely important read for anyone who believes they are working toward the goal of decolonization. Although I want my game to work to decolonize futures, it is important that I do not use the term improperly – if I did, this would be appropriating the term and harming the movement. Tuck and Yang highlight that decolonization should not be confused with other often unrelated social justice work, and that that work should not be labelled as decolonizing. Because my game does not thoroughly understand and make "mention of Indigenous peoples, our/their struggles for the recognition of our/their sovereignty, or the contributions of Indigenous intellectuals and activists to theories and frameworks of decolonization" (p.3) – and also probably does not clearly work beyond the bounds of reconciliation, challenging current systems to the point that they collapse and indigenous people have full power returned – saying I am "decolonizing futures" would actually take away from the true decolonization movement. I think I would need to make an extensive effort to work to true decolonizing ends, and I hope I will be able to continue to understand this better in future projects – for the time being, I will be careful in my language and will try not use the term inappropriately.

Womack, Y. (2013). Afrofuturism: The World of Black Sci-Fi and Fantasy Culture. Chicago Review Press.

Womack explores racial disparity in futures, and the potential for afrofuturism to challenge the hegemonic white future. The text questions black involvement in futures in terms of black people actually being in futures and afrofuturism's lack of acceptance into mainstream discourse. Womack calls for us to create our own spaces in futures, spaces which all people create and in which all people involve themselves.

Game Design

Boal, A. (1979). Theater of the Oppressed. Pluto Press.

A form of arts for social change, Boal's theatre aims to humanize spectators and engage them in thinking and acting for themselves. The form gives all people power in telling their own stories,

enabling them to start discourse around any theme. My game aspires to these goals – the game should give people power to create and share their own futures through narratives, worlds, scenarios, and more.

Boss, E. C. (2013). Of Rabbit Holes and Red Herrings: Interactive Narratives of ARG and Larp. WyrdCon Companion Book, 22–30.

Boss explores the participatory entertainment forms of Alternate Reality Games and Larping. Of importance in these forms is that participants have power in building their own narrative, rather than watching someone else's. What interested me most were the ideas of the "Red Herring" – a player-made deviation from a centrally written main plot – and an alternative "sandbox" game style that enables player choice within a specific context, which often means players generate their own narratives.

Flanagan, M. (2009). Critical Play: Radical Game Design. MIT Press.

Flanagan explores and gives designers methods to create critical play – play and games for spurring critical creative thinking, that subvert norms, and which engage diverse audiences. The text offers a thorough historical examination of critical play, especially focusing on art movements and games. Flanagan ends with a shift in game design where creators shift authority and power to empower audiences. Using these design methods, I should be able to design a game with clear goals and values, while also engaging diverse audiences.

Huizinga, J. (1958). Homo Ludens: A Study of the Play-element in Culture. Beacon Press.

In his foundational text, Huizinga explores the relationship between play and culture, arguing that play comes before culture. Further, he investigates many forms of play and play in relation to many aspects of culture from law to war to art. Most helpful to me is Huizinga's understanding of the context of play, the Magic Circle, which has caught on amongst game design scholars.

Institute For The Future. (2017). Games. Retrieved March 31, 2017, from http://www.iftf.org/our-work/people-technology/games/

A great list of futures games, with descriptions a click away, created by or associated with the Institute For The Future. The list shows a healthy variety of games dealing with many serious social and environmental issues. Some of these have provided me great inspiration.

Jenkins, H. (2004). Game Design as Narrative Architecture. Computer, 44(53).
Jenkins encourages game designers to think of games as spaces ripe with narrative possibility. The article shares many forms of narrative in games, with emergent narratives provoking my thoughts most. Emergent narrative designs game spaces with narrative potential, enabling players to construct narratives. Hopefully, I can apply this sort of game design to a futures game to encourage player-generation of various futures.

McGonigal, J. (2012). Reality is Broken: Why Games Make Us Better and how They Can Change the World. Vintage.
McGonigal explores what the real world is missing, and how games can fill that void while empowering us to live as engaged, thoughtful, happy, and collaborative problem solvers. The text presents a foundational understanding of games, and explores how we can design games that draw people in, generate collective action on serious social problems, and reinvent reality. McGonigal's text shows the importance and power of game design, and gives strong direction on how to create an intentioned, engaging, and life-changing game.

Salen, K., & Zimmerman, E. (2004). Rules of Play: Game Design Fundamentals. MIT Press.
The text shares a foundation understanding of games, seeking to explain what they do, what they can do, and what they should do. In the end, it is somewhat of a toolkit for a game designer – what elements are necessary, how do you design a meaningful game, how do humans experience the interactive system the designer created? While providing interesting bits of information, the text has an unfortunately narrow definition of games, which limits its usefulness to someone generating an experience outside that scope.

Schell, J. (2015). The Art of Game Design: A Book of Lenses, Second Edition. CRC Press.

A game designer manual asking critical questions that provoke intentioned and powerful game design. The text provides many different perspectives through which you can understand and improve a game. Each of these perspectives comes along with valuable questions that drive to the heart of each element of a game – every bit of the game from story to physical interface has power to enable a certain player experience. I will be asking many of these questions as I design my game.

Situation Lab. (2017). Gameplay Variations for The Thing From The Future. Retrieved from http://situationlab.org/2017/02/03/gameplay-variations-for-the-thing-from-the-future/

The Situation Lab offers interesting and useful variations of gameplay for The Thing From The Future. Some have different intentions, while others are variations for the size of group. Variations like this are valuable examples of how I can make my game more accessible for more people, and have it serve a wider range of intentions.

Smith, R. (2010). The long history of gaming in military training. *Simulation & Gaming*, *41*(1), 6-19.

Smith explores the use of simulations and gaming in the military context from the stone age to the computing and personal gaming ages. Smith also looks to future possibilities for gaming in war. The paper provides a good foundation for understanding the historical significance and use of games in warfare, and shows a few fields (military, education, architecture, and others) where games have been applied in a very serious manner.

Other Readings

Ariely, D. (2009). *Predictably Irrational: The Hidden Forces that Shape Our Decisions*. HarperCollins Publishers.

Ariely explores the foundations of behavioural economics, and some possibly unexpected patterns of human behaviour. Understanding how we make decisions is crucial to designing games meant to provoke future thought and inquiry.

Aronson, E. (2011). The Social Animal (10th ed.). Worth Publishers.
Aronson offers a foundational understanding of human behaviour through psychology, especially focusing on behaviour in social contexts. The text explores topics from bias to prejudice to ingrouping and outgrouping. Insights here provoked further critical thought on futures studies and game design as collaborative practices with collaborative methods.

Chu, K. (2014). Service Design Vancouver Meet Up - Hands On Workshop. Design. Retrieved from http://www.slideshare.net/kaishin/service-design-vancouver-meet-up-hands-on-workshop-research-techniques-i
Chu provides an excellent diagram of the convergence-divergence iterative design double diamond.

Forbes, D. P., & Milliken, F. J. (1999). Cognition and Corporate Governance: Understanding Boards of Directors as Strategic Decision-Making Groups. The Academy of Management Review, 24(3), 489–505. https://doi.org/10.2307/259138
The authors provide a rigorous exploration of what elements improve group decision-making processes, focusing on corporate boards. Diverse perspectives and evaluation of these perspectives lead to higher quality decision-making.

Heath, J. (2002). *The Efficient Society: Why Canada Is As Close to Utopia As It Gets*. Penguin Books.
Heath challenged me to observe and understand Canadian social problems and behaviour from a different perspective. He framed problems as relating to efficiency and reframed our understanding of these problems to fit within game theory, specifically the prisoner's dilemma. The reading provoked the question, how can we avoid the race to the bottom in game design, and instead bring about collaboration?

Kahneman, D. (2011). Thinking, Fast and Slow. Doubleday Canada.
Kahneman helped me understand the foundations of human behaviour. The text is invaluable in it's breadth and depth. It offers

deep insights into two major patterns of human behaviour -- the first (fast), more rational, logical, and strategic; the second (slow), more emotional, reactive, and intuitive -- both of great importance to the success of our species and to understanding how we behave in diverse contexts.

Page, S. E. (2007). Making the Difference: Applying a Logic of Diversity. The Academy of Management Perspectives, 21(4), 6–20. https://doi.org/10.5465/AMP.2007.27895335

Page argues that diverse groups of people with diverse skills and perspectives are more successful at problem solving and predictive tasks than high ability individuals. Considering more options and opinions reduces margin of error, and leads to higher quality action.

Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Penguin.

Thaler and Sunstein explore “choice architecture”, the idea that we can design choices to encourage certain outcomes. They set this within a context of “Libertarian Paternalism”, a system that allows for full freedom while attempting to create positive social change. The text offers insight into systems design, which relates strongly to game design and human behaviour.

Appendix E: Annotated Ludography

Captain Sonar (2016). Roberto Fraga & Yohan Lemonnier.

A fast-paced, highly stimulating, cooperative and competitive simulation of a submarine battle, this game is like *Battleship* on steroids. Teams of four communicate and work together to operate a submarine (through various mechanisms from drawing to puzzle solving) and destroy their opponent. Fraga and Lemonnier inspire me to think outside the box in my game design, challenging how we think about games to create something unique and engaging.

Diplomacy (1959). Allan Calhamer.

A strategic war simulation game, players rely on their ability to negotiate longstanding relationships (the online version I played involves one turn per day for as many as three weeks or more) over their sheer might or luck. Although set in the past, the game requires strategic short-term and long-term futures thinking within a specific scenario. Games like this provide a foundation for engaging simulations, and a good launching point for game development seeking to provoke creative and critical thought.

DiXit (2008). Jean-Louis Roubira.

One player says a title for a story or tells a short story, and shares a beautiful art card facedown with the group. Other players also have cards and share with the group facedown, trying to convey the story title or story through that image. Players then vote for which of the shuffled cards they think is the original storyteller's art card. The game takes a twist on art and storytelling, activating our creativity and imaginations differently than any other game I've played.

Dungeons & Dragons 4th Edition (2007). Wizards of the Coast.

The most prominent foundational roleplaying game, Dungeons & Dragons takes players on fantastical adventures through worlds and narratives rich in character and plot. The Dungeon Master generates a fictional world in which players explore with their own custom-created characters. Further, the Dungeon Master urges players forth into a DM-crafted narrative with reachable

objectives and pivotal decision-points. A good DM galvanizes players' imaginations, which in turn shape the narrative within the DM's world. Dungeons & Dragons shows the importance of narrative, imagination, and player free-will in evocative and engaging game design.

Kaleidoscope (2014). Jackson Tegu.

A more accessible and manageable version of Ben Robbins' Microscope with an intended comedic twist. Its layers of complexity allowed for engagement and enjoyment while also being minimal enough for pick up and play. Offered insights into creating enough rules/structure to encourage creativity without becoming overbearing to the point of stifling imaginations.

Kingdom (2013). Ben Robbins.

Kingdom is an active roleplaying game in which players create, act within, subvert, and destroy a community. Players craft a fictional community, where it would interact, and the characters within that community. They then present the community with difficult decisions, which have serious consequences, and see what happens. Similar to *Microscope*, the rule book is heavy (176 pages), which makes it very difficult for non-gamers to engage unless someone takes them under their wing. The game is definitely interesting, and feels challenging and worthwhile throughout. However, it would be hard to play with people who don't play a lot of games.

Kriegsspiel (1812). Georg Leopold von Reiswitz.

Although I did not play this game, it was one of the first formal and official war simulation games using complex maps and modes of movement and battle. Of course, there are much earlier war simulation games like chess, but this was one of the first recognized by Europeans that made the experience feel more like a real war.

LUGU (2014). Ben Miles.

LUGU combines elements from *DiXit* and *Rory's Story Cubes*. Players use art cards in their hand to create a story. Other players attempt to guess which cards the storyteller has used, and eventually build a larger story as a group. This game provides a

useful example of work building on past games. I hope to involve elements from many games, and so hope to learn from LUGU.

Microscope (2011). Ben Robbins.

Microscope is a collective narrative-generating roleplaying game. Players engage in crafting a fictional history of their world, thereby building a world and its story as a group. The game design allowed for and encouraged creativity and exploration of players' imaginations, but the heavy rulebook made it somewhat inaccessible to non-gamers. Playing through Microscope offered insights into designing a game that would capture a wide audience, while engaging that audience rigorously in the game's purpose.

Mysterium (2015). Oleksandr Nevskiy & Oleg Sidorenko.

Using a similar game mechanic to DiXit, one player (the ghost of a murder victim) tries to tell the story of their murder to the other players using art cards. The game requires great imagination and creativity, and also goes beyond DiXit with this mechanic to create a coherent story. Of course, there are a limited number of possible stories, and all relate to murder. Still, the game is very engaging and plays differently than most other storytelling games or games in general.

Nanofictionary (2013). Looney Labs.

Players collect various cards from the deck building specific aspects of a story – characters, settings, problems, and resolutions. Each player then tells a short story, technically 55 words or less. Finally, players vote on the best story. The game is extremely fun and actually somewhat challenging – shorter stories are often harder to compose on the spot. However, the stories being short means I couldn't really elaborate my ideas while playing. For a futures game, this could be an issue – more rich detail and elaboration can help bring a future world to life in other players' minds. Still, it was well worth playing, and I think it provided valuable insights for my game design.

Once Upon A Time (2012). Richard Lambert, Andrew Rilstone, & James Wallis.

Players compete to tell a fairy tale ending with a specific plot using cards with events or situations. Players can interrupt each other when the storyteller mentions something on another player's card. While the game was fun, sometimes specific players were left out of the conversation/story for extended periods of time. Further, players can avoid talking about certain things or people because they know another player will interrupt them (they have that card in their hand). The game is definitely engaging, but could be more collaborative, or allow more space for people to share stories and ideas openly.

Pandemic: Legacy (2015). Matt Leacock & Rob Daviau.

Ranked number one overall on BoardGameGeek, this game simulates a year-long explosion of contagious disease over roughly forty to fifty hours of actual gameplay (spread out over many sessions). Players must engage in future planning and strategy to cure diseases and prevent global collapse. The most remarkable aspect of the game: decisions are permanent and have permanent consequences on future gameplay. The game design offers valuable insights into provoking emotional, logical, and critical behaviour in players, while engaging them in a thorough and long future experience.

Pathfinder Roleplaying Game (2009). Paizo Publishing.

An offshoot of D&D, Pathfinder's gameplay relies on a heavier rulebook and higher mechanical complexity to engage players in an adventure. In Pathfinder, players tend to use pre-created adventures/narratives, and the game manager (dungeon master) does not drift from the storyline or from the rulebook. Essentially, D&D leverages generative aspects (creating narratives, scenarios, and worlds) to create an experience, while Pathfinder focuses on simulating an experience within an already existing playspace.

Rory's Story Cubes (2010). Rory O'Connor.

Rory's Story Cubes is a creative storytelling game. Players roll nine six sided dice. Each die has six symbols on it. Players then tell a story using the symbols they see in front of them, trying to weave each into the story arc. The game is one of the most commercially successful creative and/or storytelling games in the world. It

opens people to new ideas and enables them to tell creative stories. I'd like to make a game as engaging and fun as this!

Superstruct (2008). Jane McGonigal.

Unfortunately, I couldn't play Superstruct as the game is no longer live. However, I did gather some understanding of the game from its website (http://archive.superstructgame.net/about). The game launched in 2008 by immersing people in a collapse narrative – humans would go extinct in 23 years. Players created an online profile outlining who they genuinely thought they might be in ten years. They then learned about five superthreats through breaking news reports set in the future. They could dive deeper into each of these threats, reading and watching stories, talking with other people online, and more. Eventually, they could propose superstructures, which are a sort of collaborative interdisciplinary solution to a complex problem, which people could further discuss and work toward in real life.

The Thing From The Future (2014). Stuart Candy & Jeff Watson.

The game inspires individual and group futures thinking, while also teaching players about the basics for generating a future world. Laying out necessary creative elements for envisioning a future – arc, terrain, object, and mood – the game empowers players to create concrete artifacts that ground their understanding and experience of a future more tangibly. The game challenges me to create something as engaging, fun, and thought provoking as this.

World Without Oil (2007). Ken Eklund, Jane McGonigal, Dee Cook, Marie Lamb, Michelle Senderhauf, and Krystyn Wells.

A collaborative future simulation, this game collected stories (via blogging, video, photography, and more) to create a global narrative of a world without oil. Although I couldn't play the game, its website proved very valuable (http://writerguy.com/wwo/metahome.htm). The game generated specific parameters (i.e. price, supply, and more of oil) – essentially the outline of a scenario – with which people engaged, responded, and elaborated. The participatory game gave people a voice, thus creating discourse and debate, and generated rich narratives of people's lives in this particular future. The game

offers valuable insights into how to engage a large group of people in generating a collective narrative of a somewhat outlined future. It provokes me to question how we can collectively craft narratives of non-outlined futures.

Appendix F: The Change Game | Print and Play

The following pages share the Print and Play version of The Change Game. Printing the following pages (not including this one) double-sided in colour or black and white will provide you with the most recent version of The Change Game. Please also feel free to add more Change cards in the blank spaces provided on the final card sheet.

The Change Game

Contents
Game Manual
50 Change cards
24 Future cards

Set-Up
Shuffle the Change cards and place them facedown in the middle of the table.
Shuffle the Future cards and place them facedown in the middle of the table.

Gameplay

1. The person with their birthday coming up next is the first Active Player.
2. The Active Player flips a Change card for all players to see.
3. The Active Player challenges the reality presented by the Change card with the Challenge Statement. The Challenge Statement can be simple or nuanced. For example, if the Change card says to the Active Player, "Some people eat fruit.", the Challenge Statement could be "All people eat fruit." or "Nobody eats fruit." or something else that directly challenges the reality the Change card presents. The Challenge Statement is a completely true statement as of this exact moment that represents the world's new current reality.
4. Each other player now draws one Future card, which they keep secret. This is the type of future world your story comes from, and how far that future is away from today.
5. Each other player now has about two minutes to create a story of a future world (written, drawn, acted, sung, etc.) with the known Change Statement and secret Future. Stories can be as specific or broad as you want, about yourself or others or societies or more, and do not have to have a beginning, middle, or end. Stories can be serious, funny, absurd, subversive, and more! Ideally, stories give a sense of what the future world you imagine might be like with the Change Statement and Future you have in front of you.

6. Time's up. One by one each player has about 30 seconds to share (verbally, reading, through drawing, acting, a skit, dancing, etc.) their story with the Active Player and group, revealing the Future it comes from whenever they want.
7. The Active Player places the Change card in front of the player with the top story based on the Active Player's own criteria (humour, reality, creativity, absurdity, subversiveness, thought provoking, saddest, etc.).
8. Shuffle the entire Future deck (including the cards used in the last round) and place the deck back in the middle of the table.
9. The person on the left of the Active Player becomes the new Active Player.
10. Repeat steps 2 to 10.

The Objective
The first player with 3 Change cards placed in front of them wins the game.

P.S. The entire group wins when people engage in creating, actively listening to (or watching/experiencing), and appreciating diverse stories of future worlds.

Future Cards
The Future card outlines the type of future world your story comes from, and how far that future is away from today. There are four types of Futures, each an umbrella for countless possible stories:

Growth – a future in which "progress" has continued.

Collapse – a future in which society as we know it has come apart.

Discipline – a future in which order is deliberately coordinated or imposed.

Transformation – a future in which a profound historical transition (including social, economic, political, physical, and more) has occurred.

Each Future card has a type of Future, written in Black font, and a timeline, written in White font (ex. ten years from now, fifty years from now). The timeline is how far your Future is away from today. For example, if you choose a card with “COLLAPSE” and “100 YEARS FROM NOW”, your story will be about a future, one hundred years from now, in which society as we know it has come apart.

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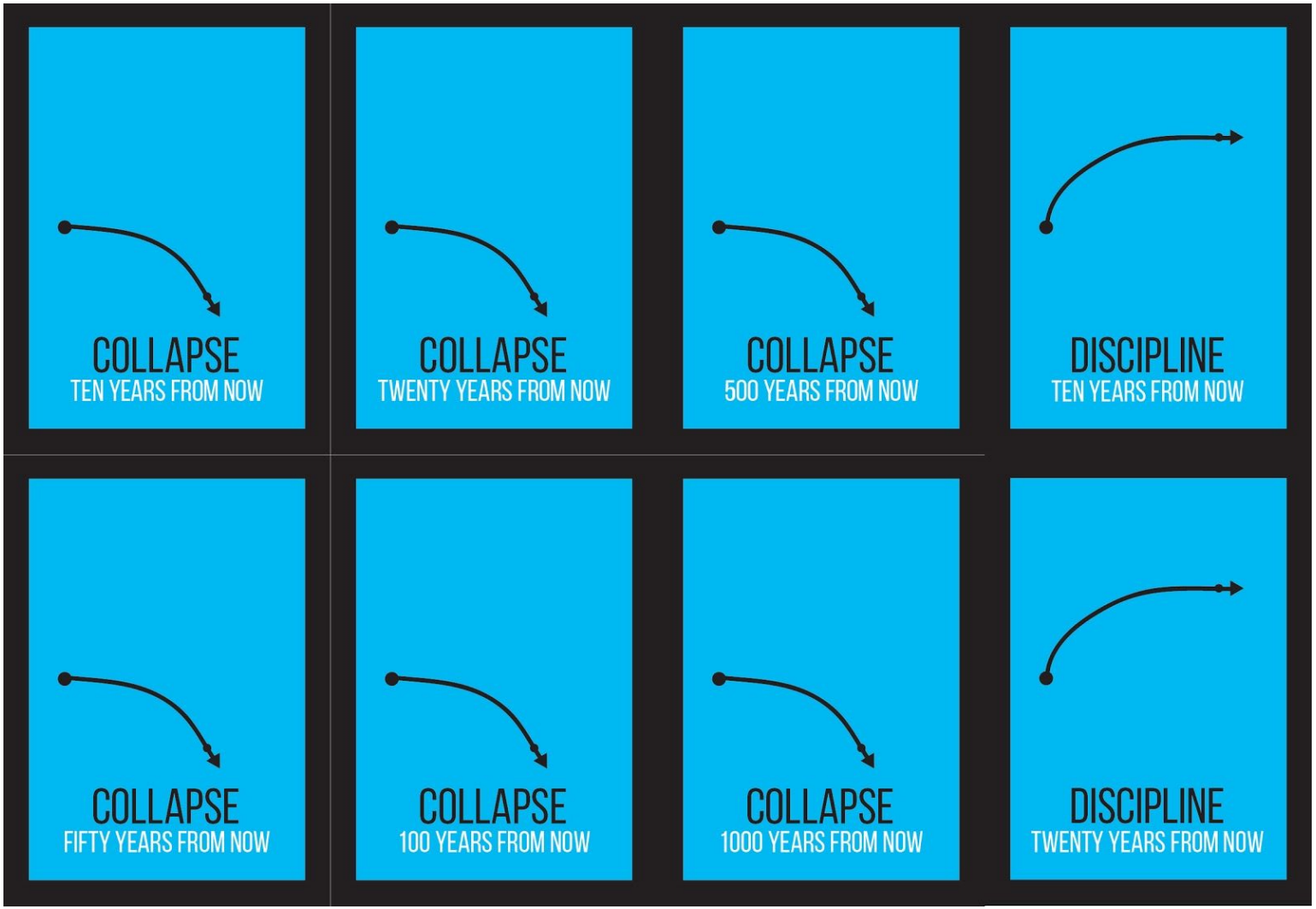
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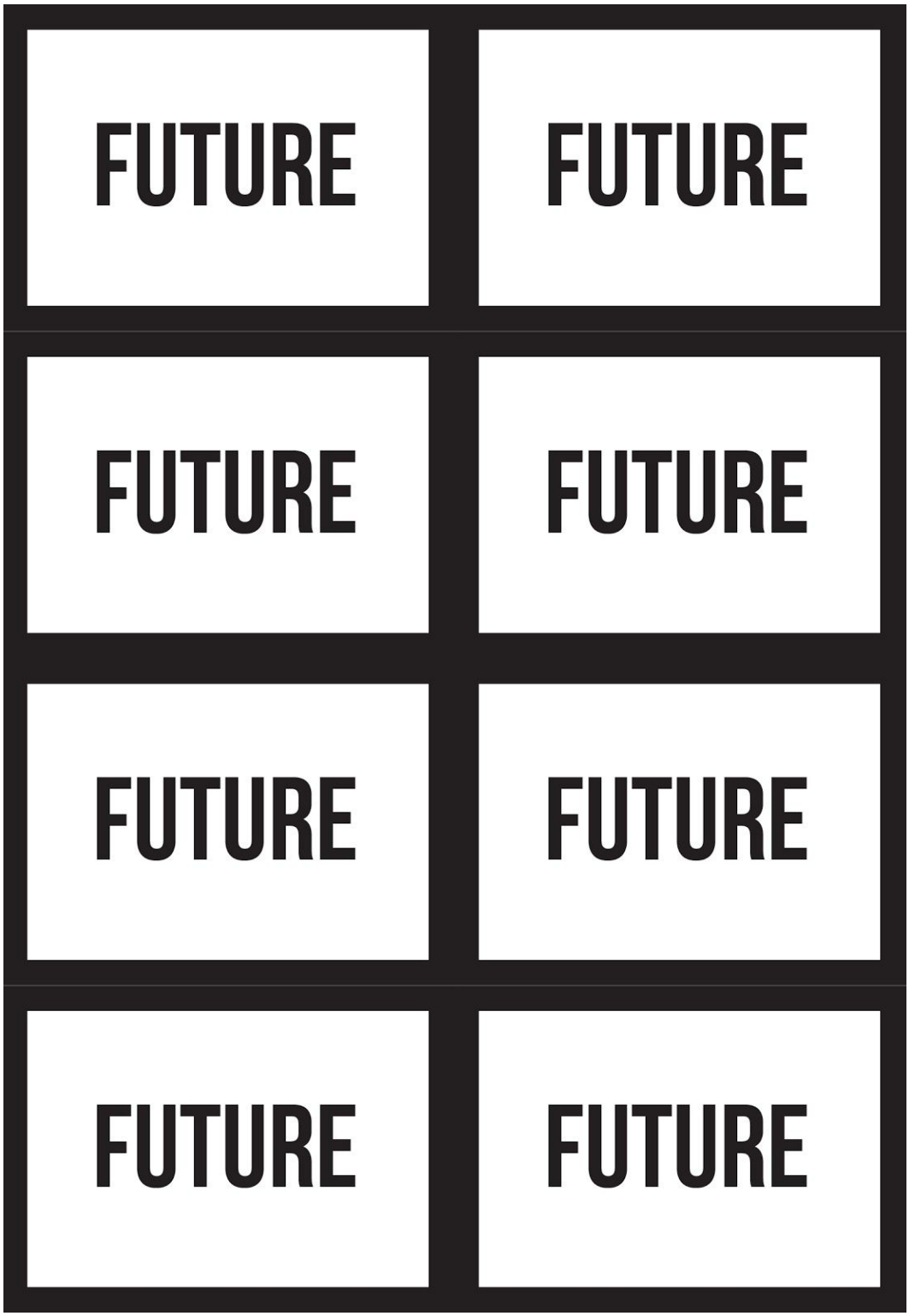
DISCIPLINE
TWENTY YEARS FROM NOW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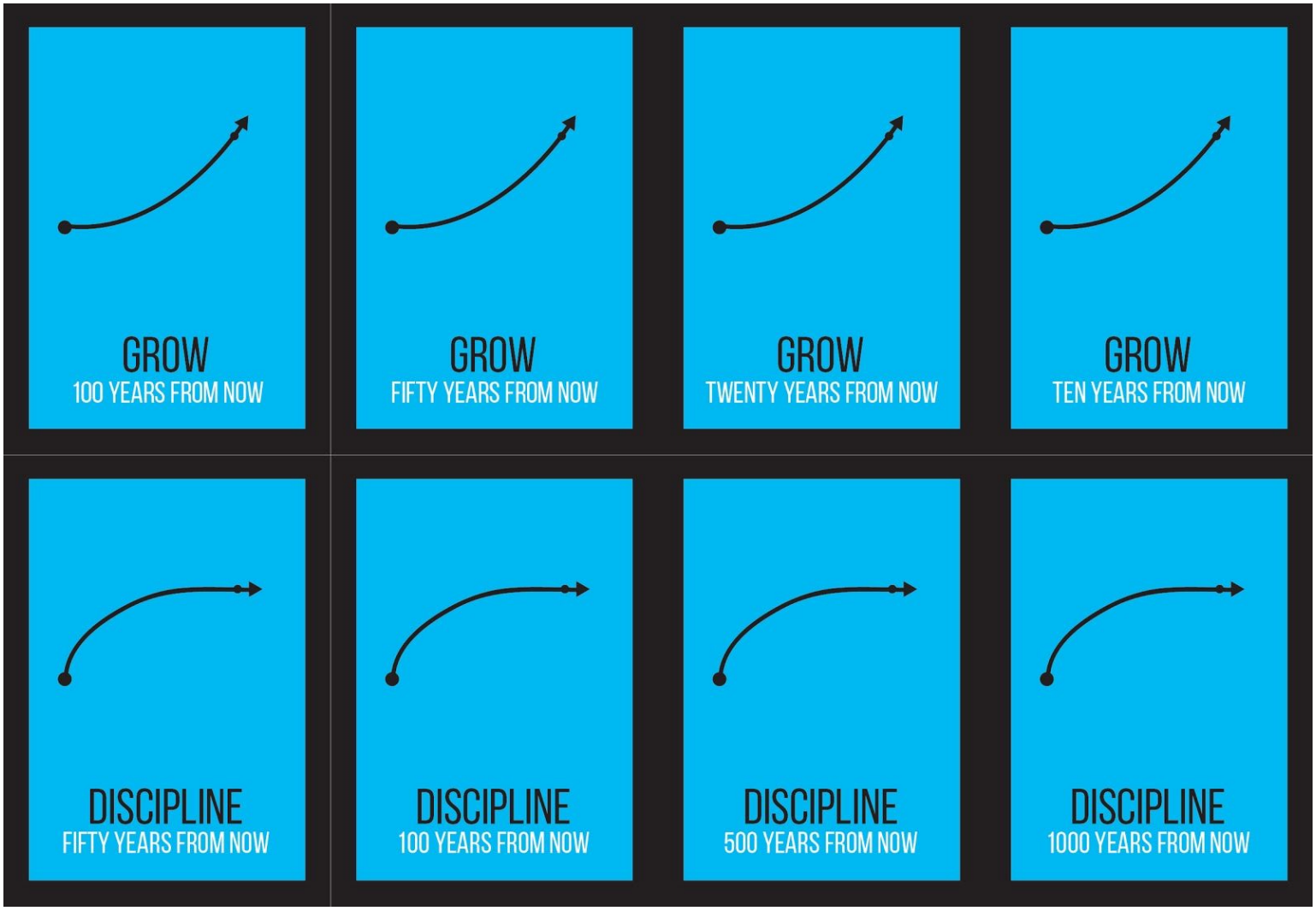
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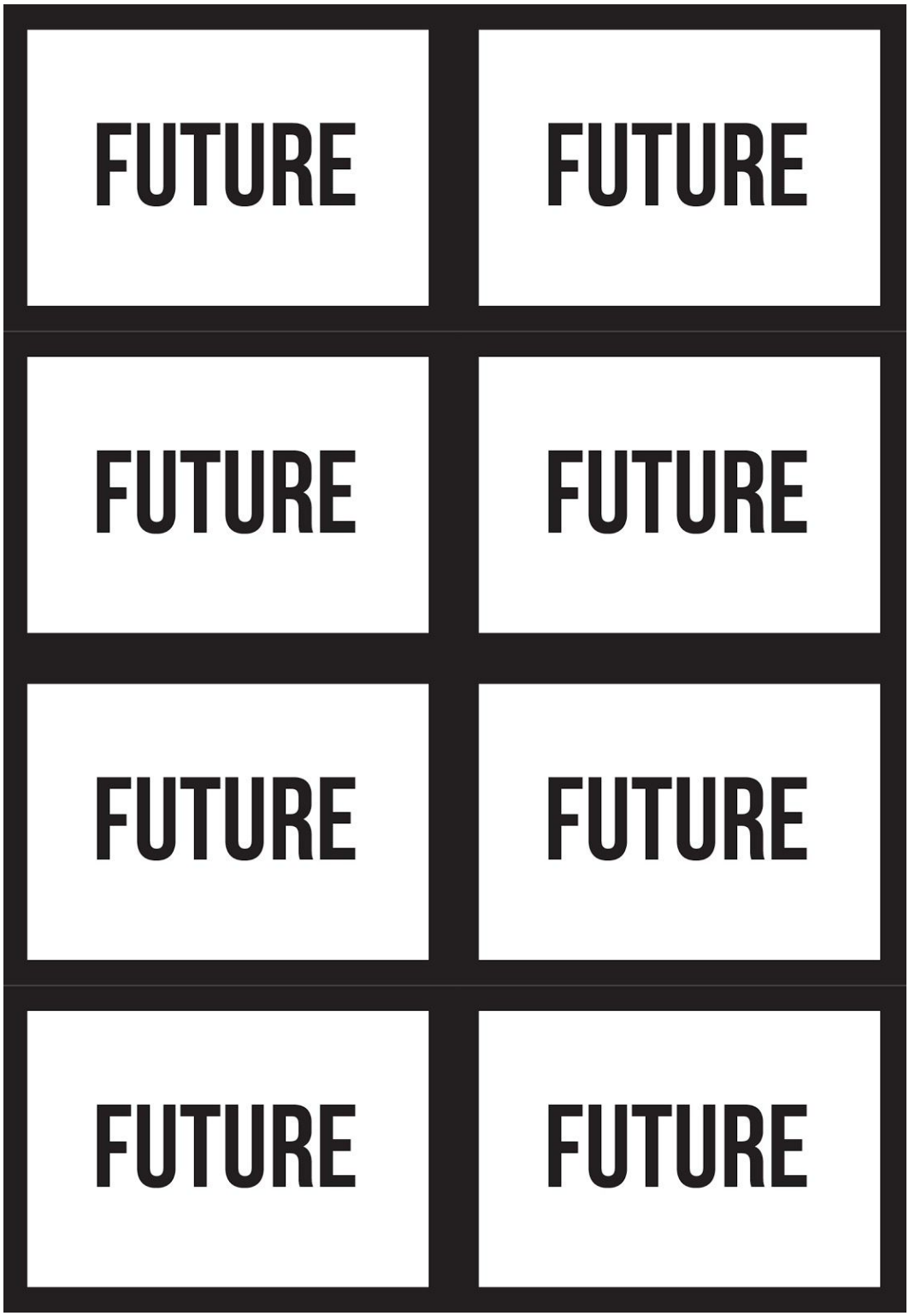
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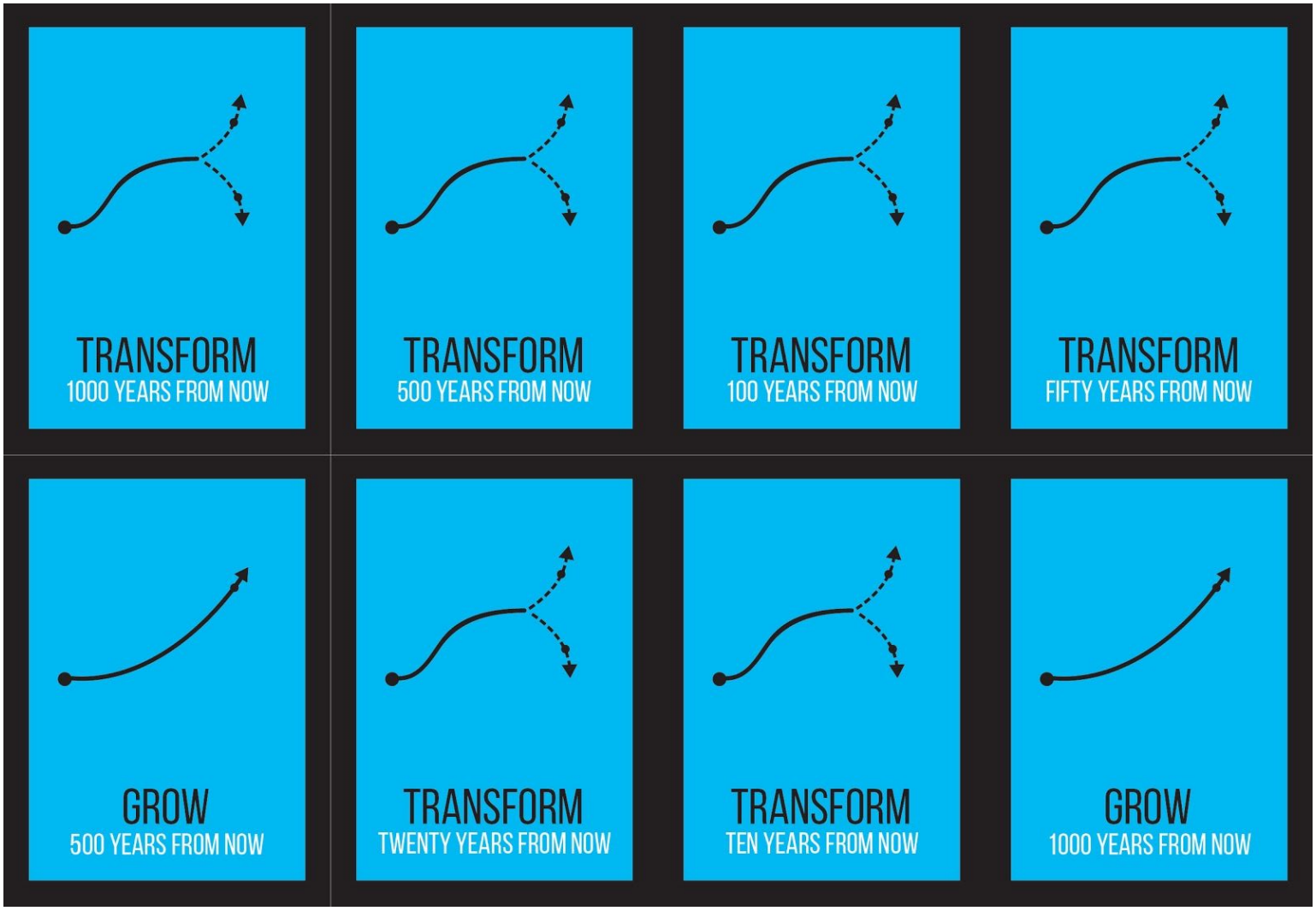
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GROW
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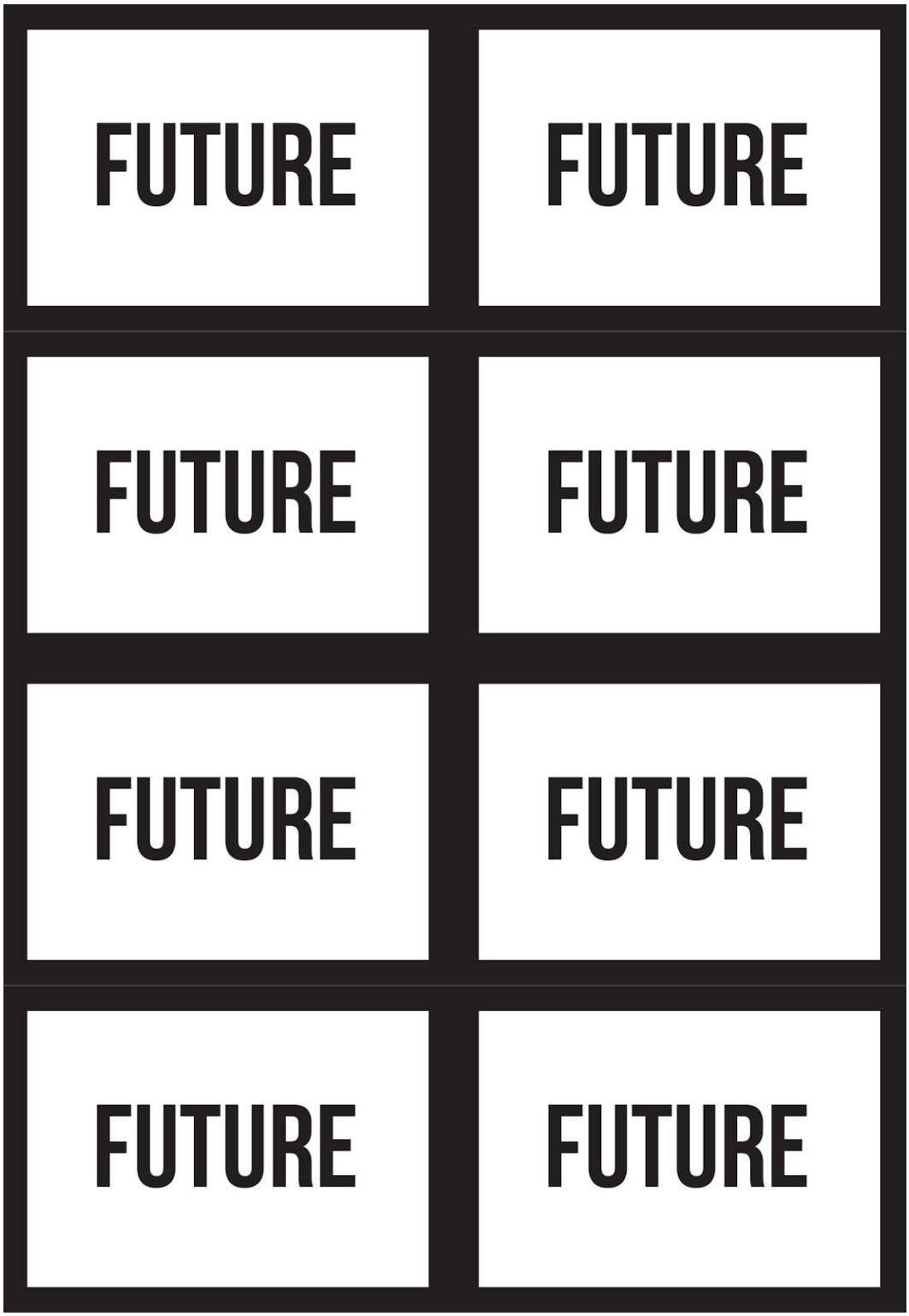
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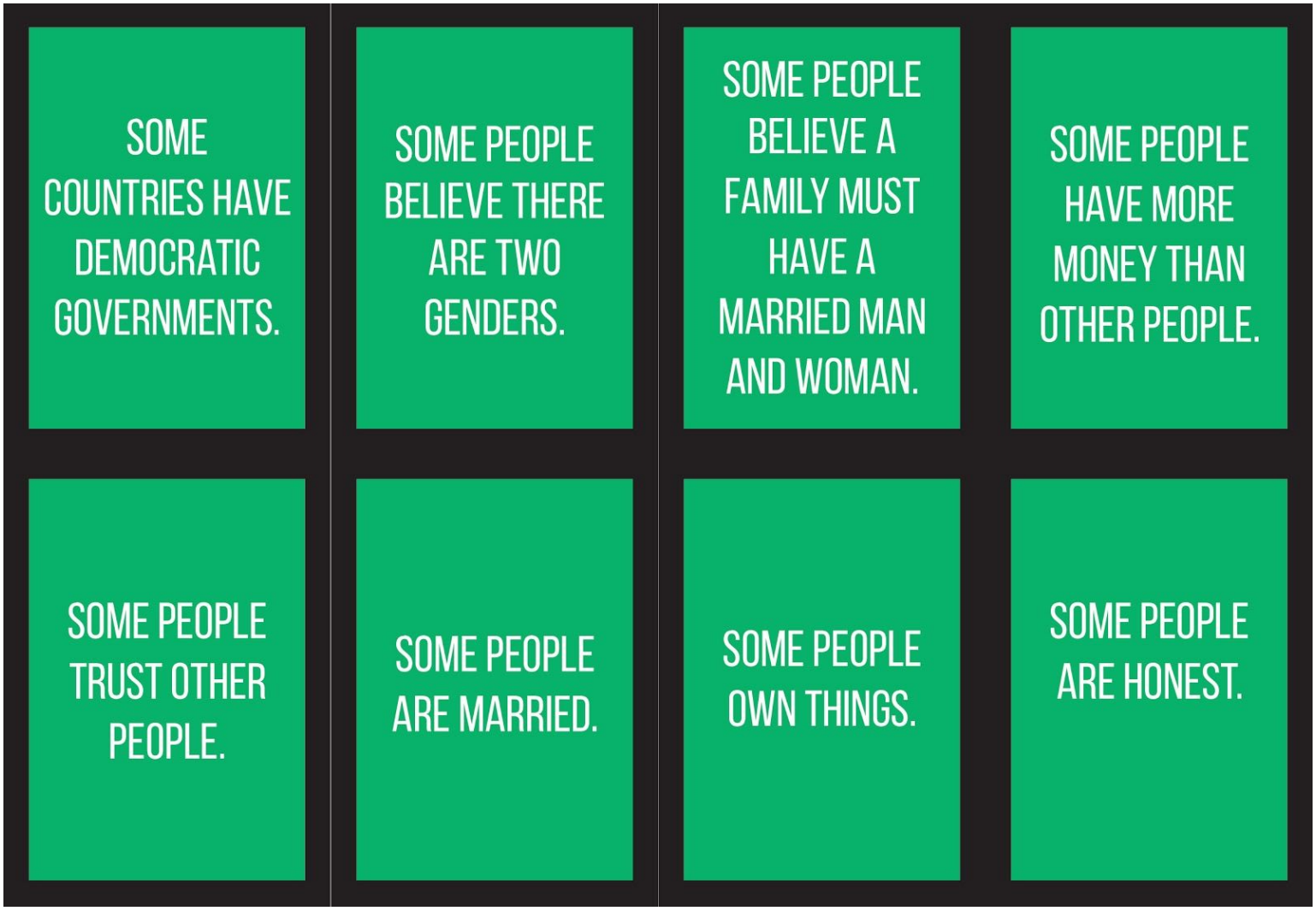
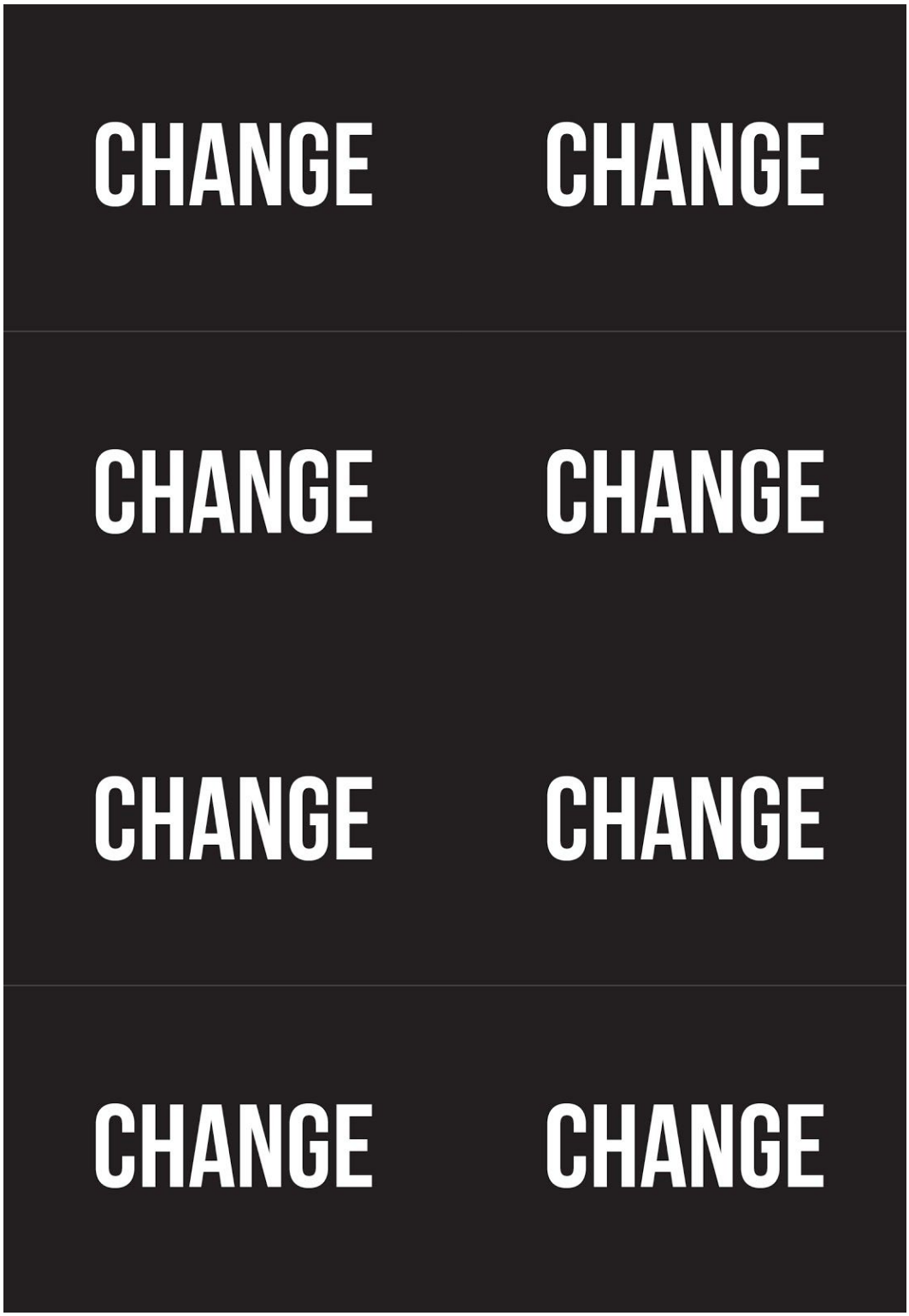

SOME COUNTRIES HAVE DEMOCRATIC GOVERNMENTS.
SOME PEOPLE BELIEVE THERE ARE TWO GENDERS.
SOME PEOPLE BELIEVE A FAMILY MUST HAVE A MARRIED MAN AND WOMAN.
SOME PEOPLE HAVE MORE MONEY THAN OTHER PEOPLE.
SOME PEOPLE TRUST OTHER PEOPLE.
SOME PEOPLE ARE MARRIED.
SOME PEOPLE OWN THINGS.
SOME PEOPLE ARE HONEST.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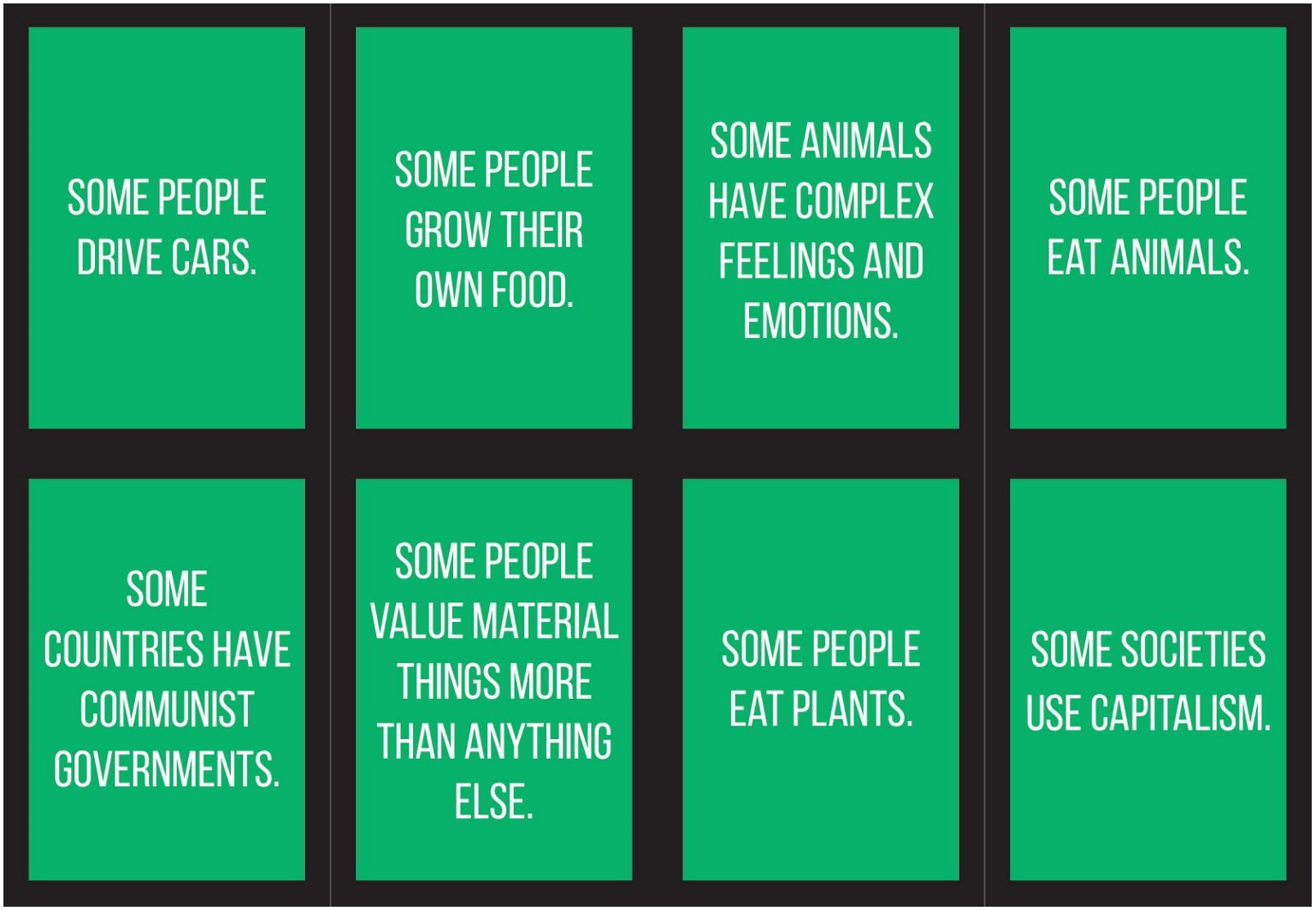
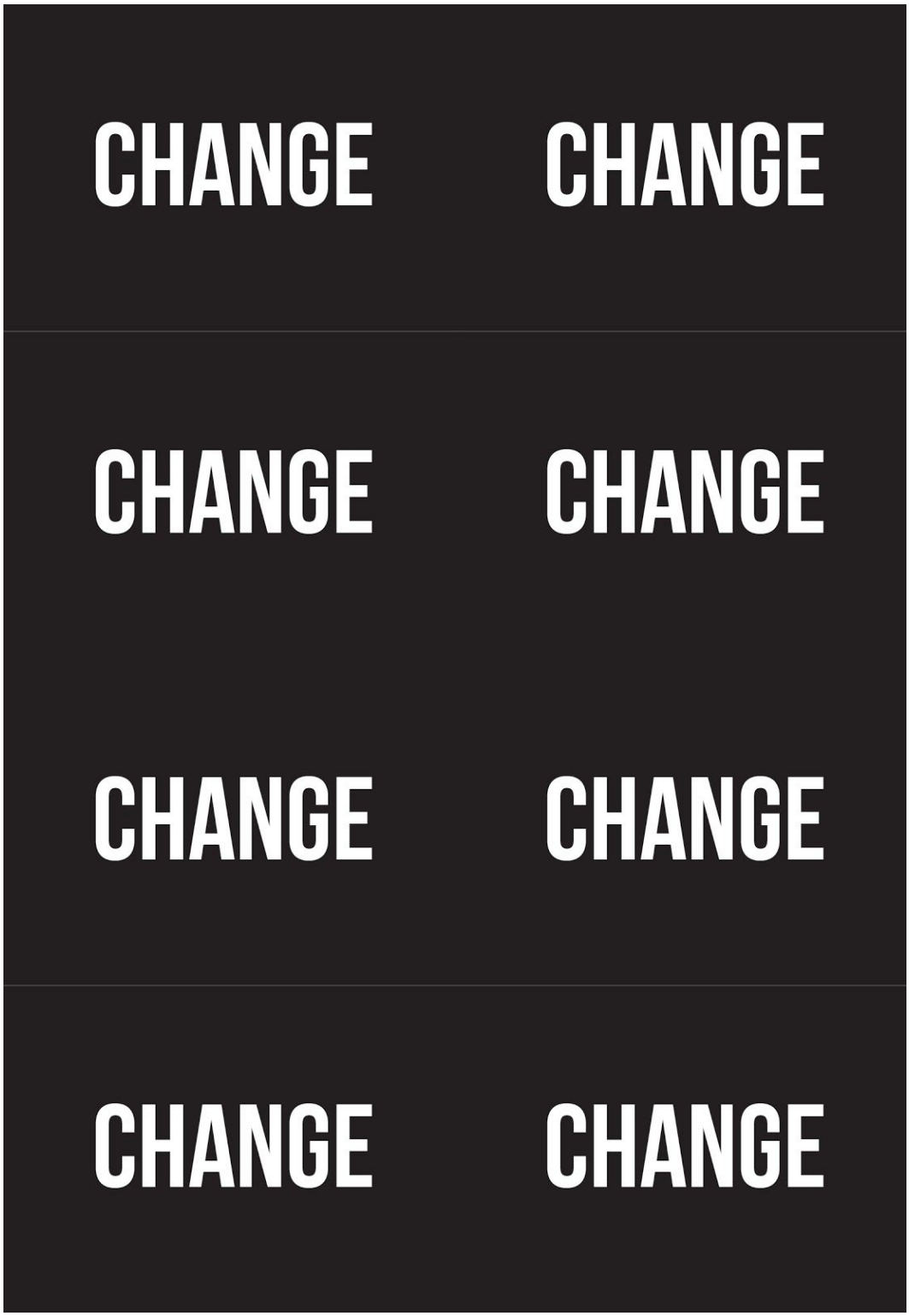

SOME PEOPLE DRIVE CARS.
SOME PEOPLE GROW THEIR OWN FOOD.
SOME ANIMALS HAVE COMPLEX FEELINGS AND EMOTIONS.
SOME PEOPLE EAT ANIMALS.
SOME COUNTRIES HAVE COMMUNIST GOVERNMENTS.
SOME PEOPLE VALUE MATERIAL THINGS MORE THAN ANYTHING ELSE.
SOME PEOPLE EAT PLANTS.
SOME SOCIETIES USE CAPITALISM.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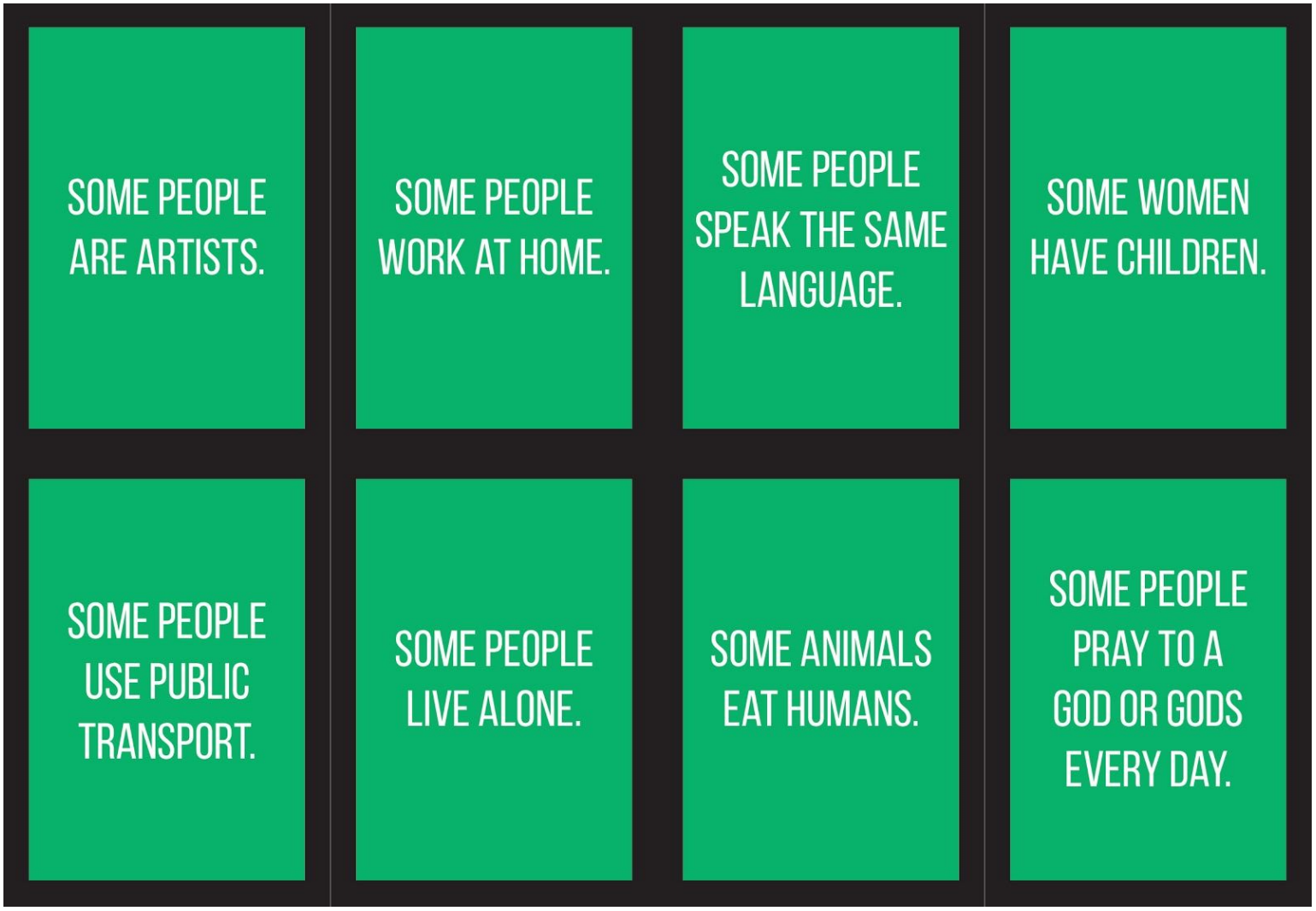
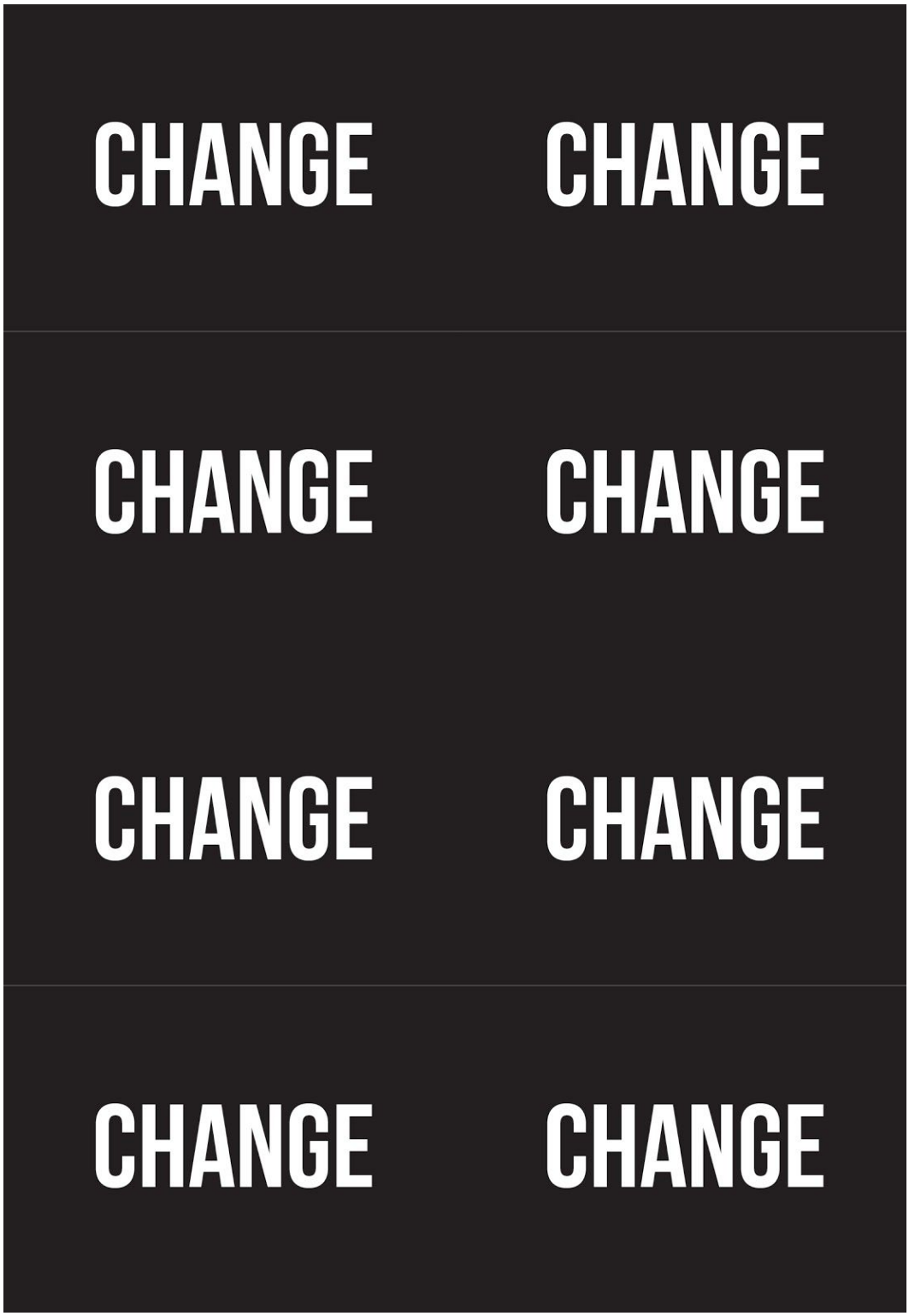

SOME PEOPLE ARE ARTISTS.
SOME PEOPLE WORK AT HOME.
SOME PEOPLE SPEAK THE SAME LANGUAGE.
SOME WOMEN HAVE CHILDREN.
SOME PEOPLE USE PUBLIC TRANSPORT.
SOME PEOPLE LIVE ALONE.
SOME ANIMALS EAT HUMANS.
SOME PEOPLE PRAY TO A GOD OR GODS EVERY DAY.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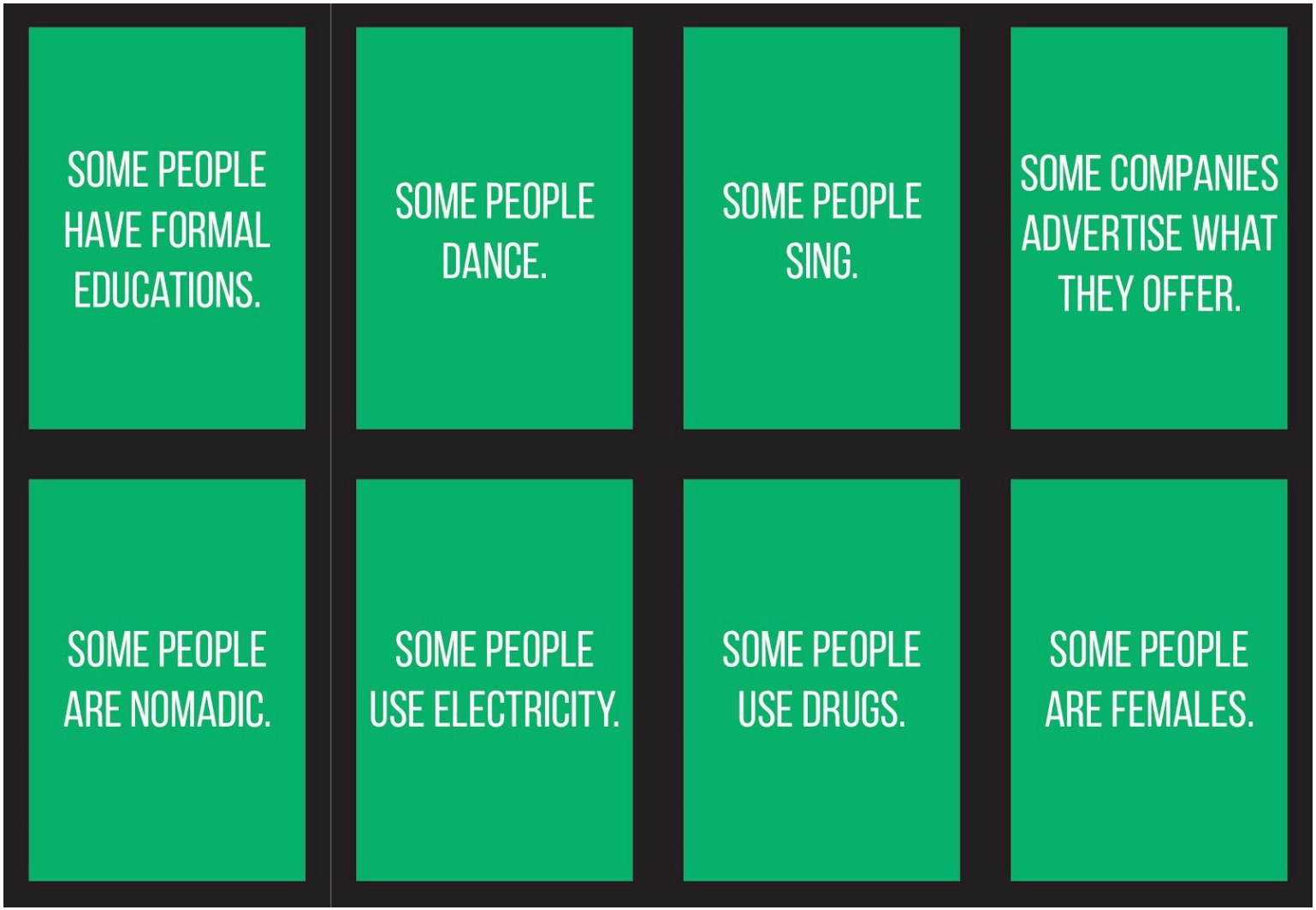
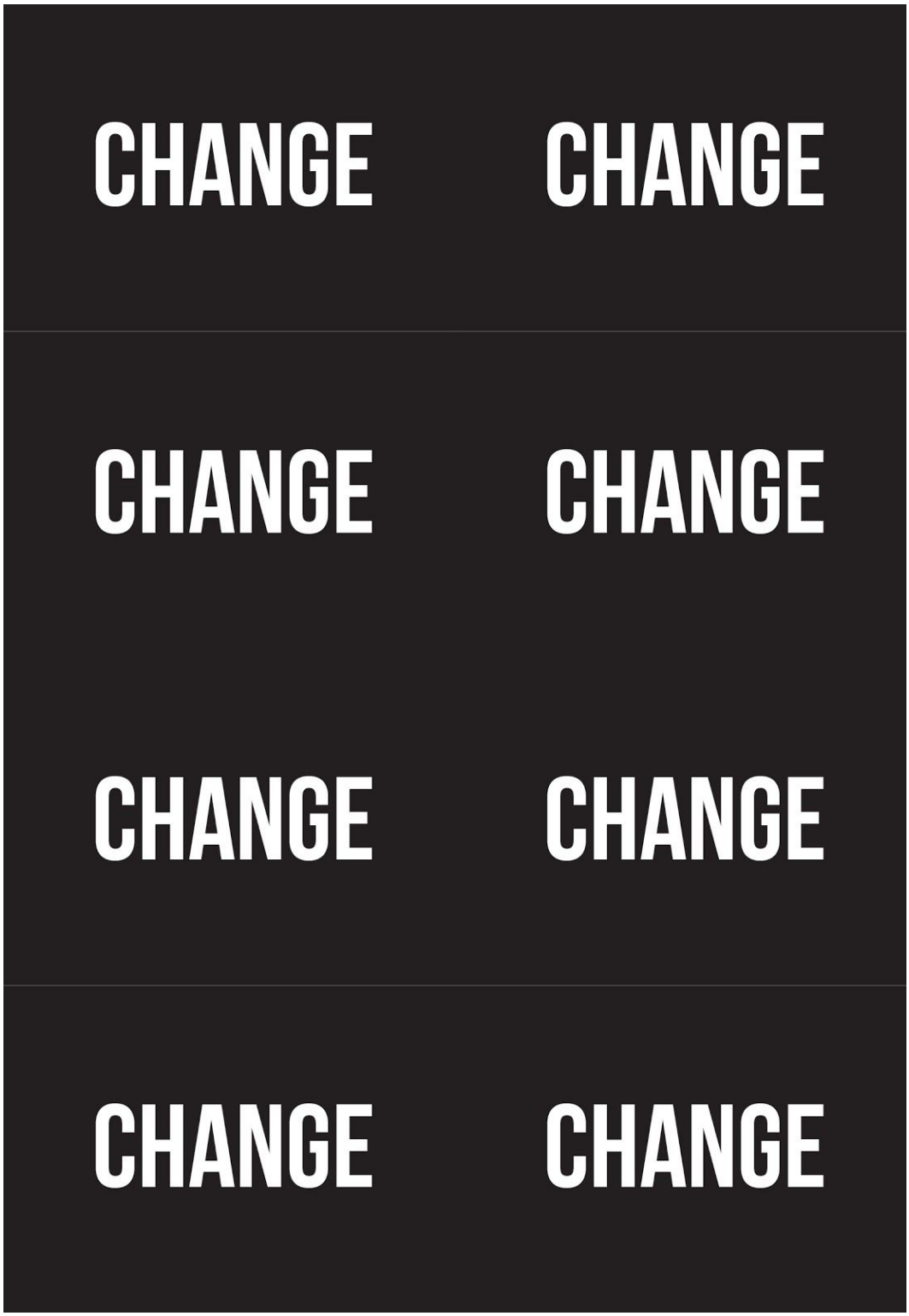

SOME PEOPLE HAVE FORMAL EDUCATIONS.
SOME PEOPLE DANCE.
SOME PEOPLE SING.
SOME COMPANIES ADVERTISE WHAT THEY OFFER.
SOME PEOPLE ARE NOMADIC.
SOME PEOPLE USE ELECTRICITY.
SOME PEOPLE USE DRUGS.
SOME PEOPLE ARE FEMALES.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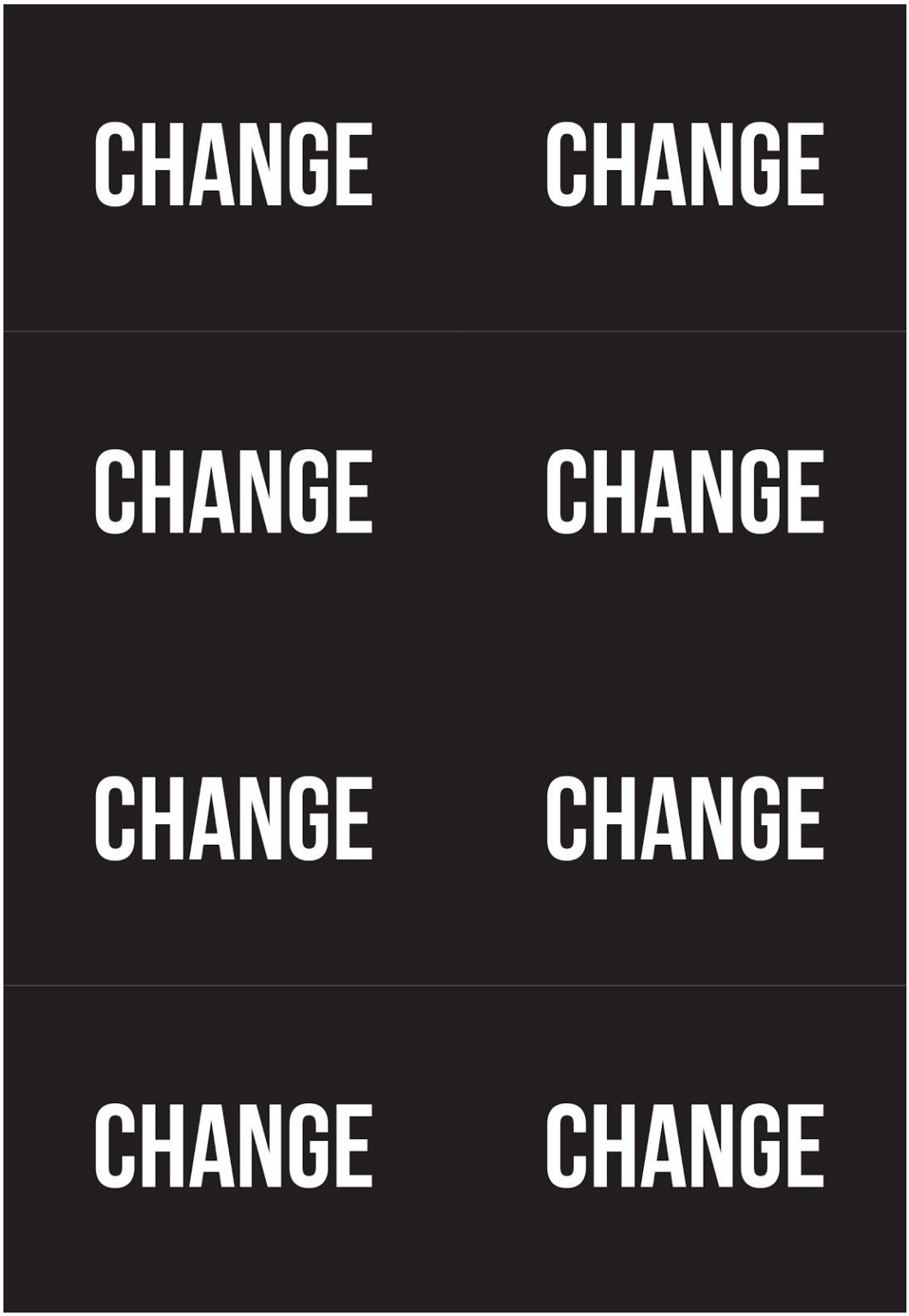
SOME PEOPLE FEEL EXCLUDED.
SOME PEOPLE HAVE DIFFICULTY WALKING.
SOME PEOPLE CANNOT MOVE WITHOUT HELP FROM OTHERS.
SOME PEOPLE PLAY SPORTS.
SOME PEOPLE CAN READ.
SOME PEOPLE ARE HETEROSEXUAL.
SOME PEOPLE BELIEVE IN AN AFTERLIFE OR REINCARNATION.
SOME PEOPLE HAVE EXCESS FOOD AND WATER.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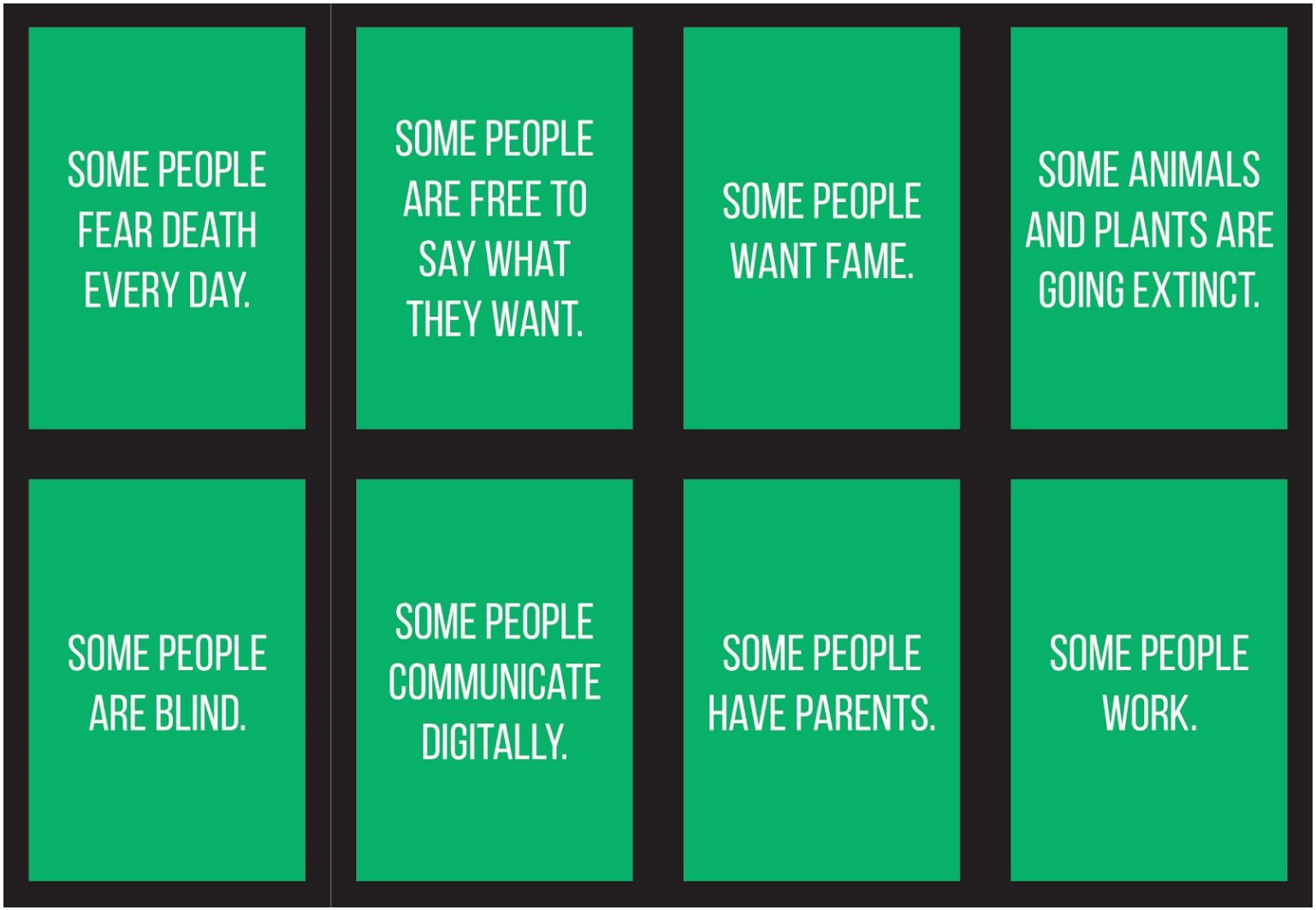
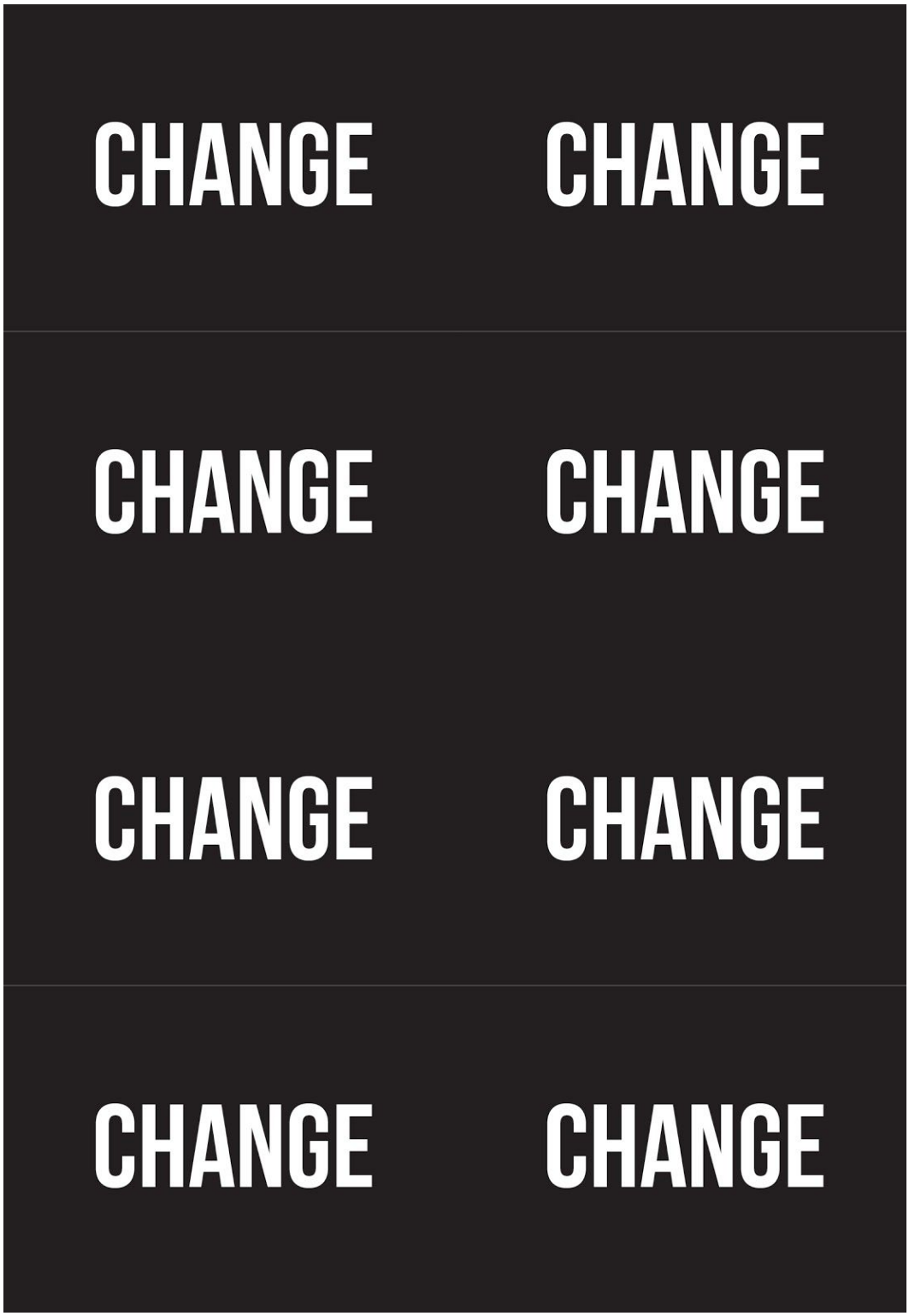

SOME PEOPLE FEAR DEATH EVERY DAY.
SOME PEOPLE ARE FREE TO SAY WHAT THEY WANT.
SOME PEOPLE WANT FAME.
SOME ANIMALS AND PLANTS ARE GOING EXTINCT.
SOME PEOPLE ARE BLIND.
SOME PEOPLE COMMUNICATE DIGITALLY.
SOME PEOPLE HAVE PARENTS.
SOME PEOPLE WORK.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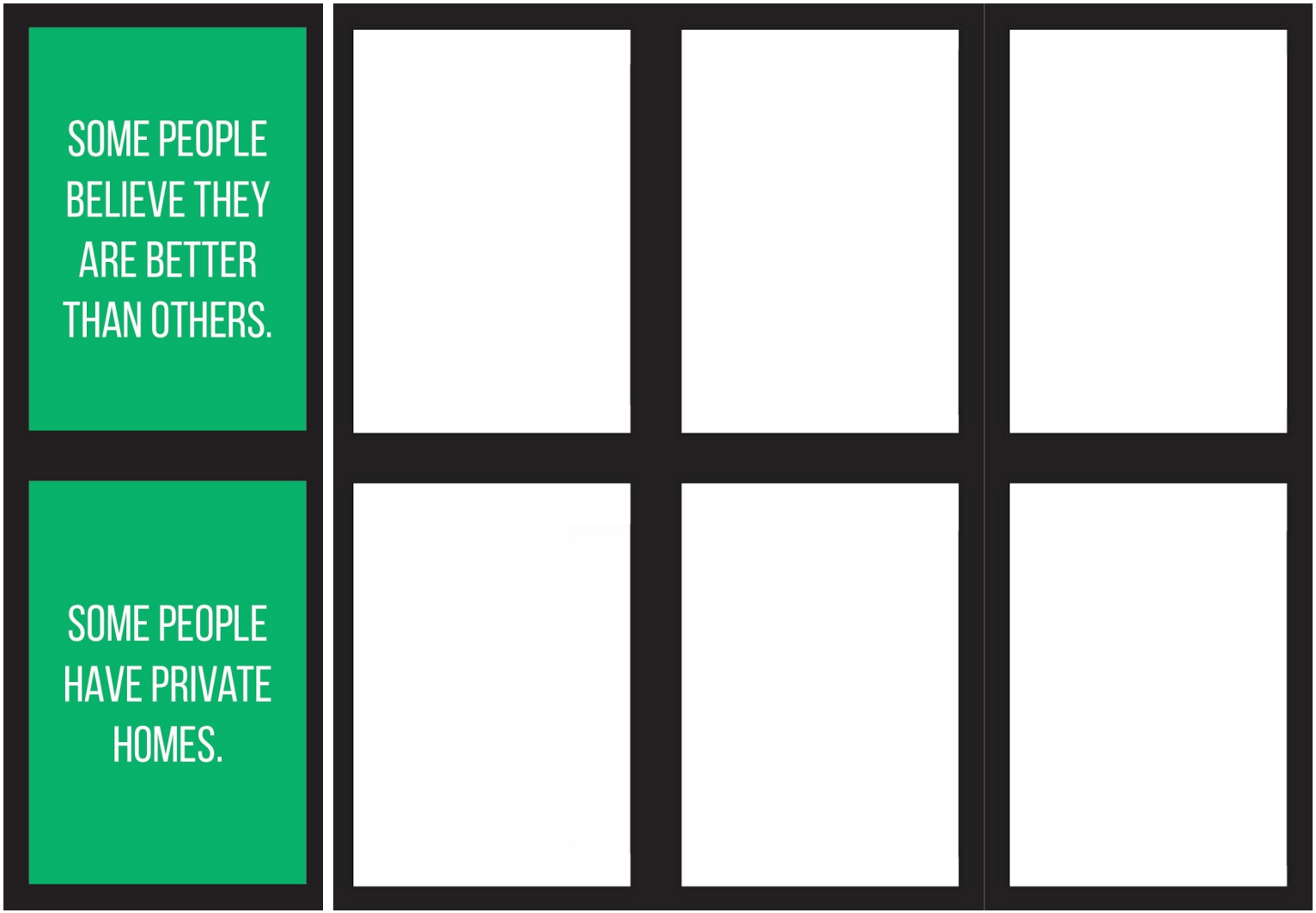
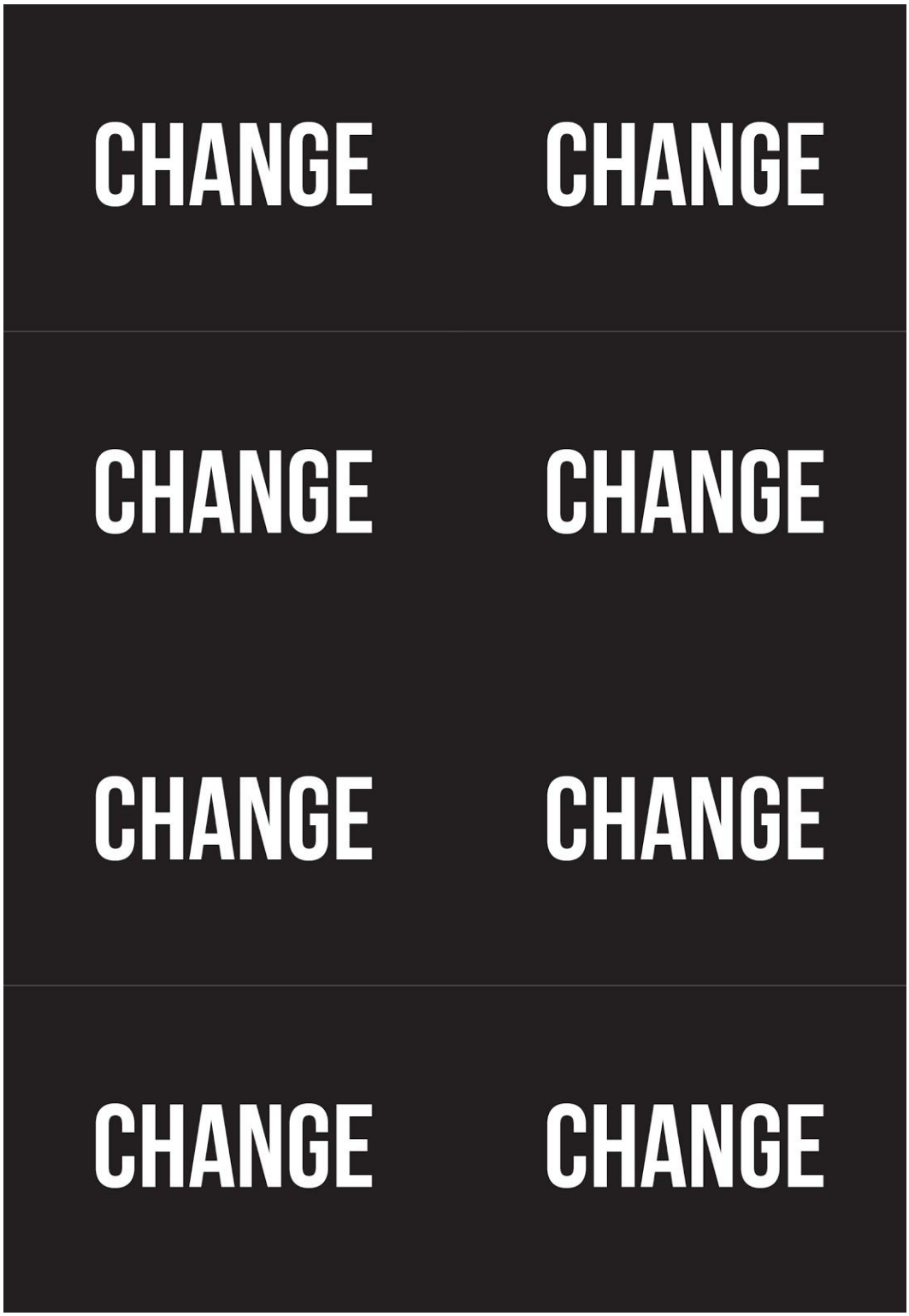

SOME PEOPLE BELIEVE THEY ARE BETTER THAN OTHERS.
SOME PEOPLE HAVE PRIVATE HOMES.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