

Futures Literacy:

The Capacity to Diversify Conscious Human Anticipation

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Introduction

This chapter offers an introduction to a capability called Futures Literacy (FL), a framework for making sense of the anticipatory assumptions that distinguish different kinds of FL, and one specific research tool called Futures Literacy Laboratories (FLL) that has been designed to explore anticipatory assumptions. The chapter points to the following conclusions. First that FL is a practical skill that develops as people gain a better understanding of anticipatory assumptions. Second that our understanding of anticipatory assumptions requires a robust theory of anticipatory systems and processes. Third, FL has potentially important implications for the conceptualization and deployment of human agency, particularly with respect to our relationship to complexity.

I: Futures Literacy as Anticipation

Futures Literacy (FL)³ is a human capability, similar to the currently much more familiar form of 'literacy', the ability to read and write. FL is a skill, and like all skills it must be learned. Someone who is Futures Literate has learned how to consciously and deliberately 'use-the-future' for different reasons and in different ways depending on the context. Conceptualising the ability to 'use-the-future' (i.e. FL) in this instrumental fashion makes clear the roots of FL in the 'anticipatory systems and processes' perspective as per the Robert Rosen formulation cited by Roberto Poli at the outset of this Handbook: "An anticipatory system is a system containing a predictive model of itself and/or its environment, which allows it to change state at an instant in accord with the model's predictions pertaining to a later instant" (Rosen, 1985, p. 339). Along with many of the authors in this volume, we believe that this hypothesis is a critical step towards integrating both time into our understanding of life and creativity (as non-

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³ Note: the capitalization of the term Futures Literacy and Futures Literate is for the purposes of signalling the distinctive nature of this skill in the context of its initial emergence. Such demarcation may eventually disappear once the unfamiliar becomes familiar.

deterministic novelty) into our understanding of complexity (Bergson; Kaufmann; DeLanda; Poli; Akomolafe).

Taking the Rosen perspective on anticipatory systems and processes as a starting point also draws attention to the difference between conscious and non-conscious 'use-of-the-future'. Although for some it may seem self-evident, it is important to underscore that there is a fundamental difference between, on the one hand, the non-conscious anticipatory systems and processes that characterize an amoeba or a tree and, on the other hand, learned human anticipation as conscious and deliberate Futures Literacy (FL). This reinforces the point that FL is a skill that must be acquired in order to be manifested. Skills are learned, in part by doing, even if the processes and outcomes that characterise a skill can be described or observed in a passive way (DeLanda, 2016, p. 80). As a result, deploying a skill involves, of necessity, explicit situational and performative decisions. In the case of FL these decisions are about why to 'use-the-future' and how to imagine it. Consequently, a Futures Literate person satisfies Rosen's definition of an anticipatory system because they activate their knowledge of why and how to 'use-the-future' – a form of model – to "change state in accord with the model." Call it anticipation of anticipation.

Such conscious human anticipation, as distinct from reflex and unconscious expressions, covers a broad range of reasons and methods, from the predictive and locked-in kind that Rosen mentions to the non-predictive – Anticipation for Emergence (AfE) – that make up a critical part of the Futures Literacy Framework presented in this chapter (see Figure 2 in Section 1 below). When it comes to FL the 'change of state' that constitutes the action arising from the functioning of an anticipatory system is the action of thought or perception that occurs prior to taking any external action understood in the conventional way as a physical or virtual commitment. Thus, exercising one's FL is a form of anticipatory action, the choice of why and how to 'use-the-future', that occurs before actually imagining any specific futures or making bets, on imagined futures, that are external to the mind. As a result conscious human anticipatory systems and processes can include 'uses-of-the-future' that go beyond the constraints imposed when the futures we imagine are confined to the probable and desirable. In the Futures Literacy Framework (Miller, 2018), as depicted in Figure 2 in the next Section, conscious human anticipation encompasses both the conventional and familiar Anticipation for the Future (AfF) and rarely considered Anticipation for Emergence (AfE). Futures imagined in the latter category are not constructed with the goal of inventing ex-ante probable or normative outcomes. Stated more exactly, futures imagined when the aim is AfE adopt narrative and analytical assumptions that are as open as appropriate and feasible to invention and novelty, improvisation and ephemerality. As Roberto Poli explains:

“...if we expand our consideration of change to fully incorporate novelty – discontinuity that is unknowable in advance – there is the challenge of being in two (or more) frames at once. How to develop the capacity to see and act in ways that take incompatible systems into account? These are situations where taking the point-of-view of one system not only renders the other invisible but often expresses an existential conflict with the new system. The problem that surfaces here is dramatically urgent: while we well know how to build a bureaucratic structure meant to act within the existing framework of agency – i.e. we know how to use the future for optimization and contingency – we are still in the deepest fog about how to build anticipatory structures able to deal organically with complex problems and systems.” (Poli, 2017, p. 185)

Being Futures Literate enables anticipatory activities that are about why and how to ‘use-the-future’ depending on a what kind of future we want to imagine: AfF or AfE. Certainly, in both cases, the later-than-now matters and an action ensues. What is different is the purpose and hence the choice of anticipatory systems and processes. One way to illustrate this idea is to imagine that anticipatory systems and processes are like special visual filters that when changed also alter what we can see, name, and invent. From this perspective, it is easier to understand the nature and importance of the difference between someone who is Futures Literate and someone who is not. A Futures Illiterate person, unaware that they use anticipatory filters cannot explicitly choose from amongst familiar ones or explicitly attempt to invent new ones. Someone who becomes Futures Literate, by acquiring the capacity to select and create anticipatory assumptions, is not only aware of the filters but is able to decide why, how and when to change filter. Of course this does not change the fact that they cannot know what the future will bring and so the selection of filter is inevitably a blind bet. Still, such a choice, as per Rosen’s definition, remains an anticipatory action resulting from an anticipatory system. As already noted, but worth underscoring, the choice of filter happens prior to actually imagining any specific future, be it probable or preferred. A choice is being made based on why you want to ‘use-the-future’ – to plan or not to plan, that is the question.

At first blush this option appears like the distinction between being active or passive, trying to ‘make a difference’ or ignoring one’s capacity for agency. After all who does not want to plan? Planning is good. We plan for the future and prepare for eventualities. There is no reason, from the point-of-view of shaping the future through chains of causal power and prescience, to entertain the idea of ‘not-doing.’ Such an approach seems like an abdication of our capacity for action, irresponsible at best and immoral at worst. From this point-of-view the utility of imagining the future is narrowed down to a single plane, the possibility space defined by causal ambition and actions meant to realise that ambition. But what if there are other dimensions of complex emergence, possibility spaces that are not confined to causality or make-a-difference-to-the-future agency? A form of taking-action that exists in the non-causal

and non-actionable spheres of complex emergent reality? Could imagining the non-existent future without the imperatives or the framing anticipatory assumptions of causal agency provide access to another window or point-of-view on the emergent world? Or a role for 'action' related to perception unsubsumed by planning and the expectation or hope of being able to control or at least influence the future?

Figure 1

Locating Human Agency in the Context of Repetition and Difference in Complexity						
		Repetition in system conditions		Difference in system conditions		
Agency		Specificity	Generality	Incremental internal	Novel internal	Non-contiguous external
Non-conscious	Inertia	Improvisation, spontaneity, invention, serendipity				
	Reflex adaptation					
	Chance					
	Ignorance					
Conscious	Preservation through continuity	Success in achieving stasis without change	Success in achieving stasis with change	Endogenous change – within system reform to maintain system conditions	Co-existence	
	Preservation through discontinuity	Disruptive coexistence				
	Exploiting novelty	Transformation				

Figure 1 offers one way of depicting an expansion of human agency beyond preparation and planning; to instrumentalise the future differently, to identify conscious 'uses-of-the-future' that do not exclusively originate from the goal of realizing a particular future. Figure 1 attempts to provide a categorical map for locating 'where'

human agency can potentially play a role, without at all claiming that the outcomes from the exercise of such agency can be known in advance. As odd and yet as obvious as it may seem it is crucial to repeat that the exercise of Futures Literacy through the choice and intervention of any particular set of anticipatory systems and processes, like the selection of a filter for looking at the world, cannot be done on the basis of prior knowledge of what will happen. We cannot see what we will see before we see it and so the selection of the filter is in this sense arbitrary. Perhaps, it is the case that in order to be good at detecting change and recognising patterns, humans rather automatically rotate filters – like when the optometrist checks a patient's vision. Maybe the evolutionary steps that stack-up behind our relatively young and immature species have provided us with anticipation patterns of anticipation that are effective at an evolutionary level. Just like trees that lose leaves as winter arrives. Yet, as powerful as the evolutionary processes may be, the point of Futures Literacy is to see if we can consciously, through the development of scientific hypotheses and testing, both understand the world a bit more – particularly novelty – and enhance our capacity to be free (Sen, 2011). Figure 1 is one foray towards mapping this ambition.

Figure 1 helps to map different ways human agency might 'use-the-future' with respect to repetition and difference, but it does not and cannot claim that "success" or causal impact can be established *ex ante* (even in cases where the likelihood of predictive success – such as the sun rising tomorrow – appears extremely high). Accepting such unescapable uncertainty often generates considerable discomfort or rejection from within the currently dominant conventional mind-set, and seems to attack the motivational underpinnings and basic functioning of human agency (Ogilvy, 2011) that depends on establishing, at least with some degree of probability, that 'best laid plans' will in fact 'make-a-difference'. But what research into Futures Literacy shows is that this association between probability and outcomes can be inter-mediated differently. By running experiments, Futures Literacy Laboratories (see Section 2), that expose the anticipatory assumptions upon which Futures Literacy functions, it may be possible to find ways of accepting the radical equality of uncertainty as a way to more fully embrace complexity.

The evidence generated by these Labs does not deny or ignore the critical relationship between assumptions that allow for the calculation of probability and the choices that humans make on that basis. Quite the contrary, since the action-learning processes deployed in Labs to develop participants' Futures Literacy are designed to render conventional Anticipation for Future (AfF) reasons and methods for 'using-the-future' more explicit. Then, building on a better awareness of AfF anticipatory assumptions it becomes easier to develop and explore other reasons and methods for 'using-the-future', including those related to Anticipation for Emergence (AfE). In this way the acquisition of Futures Literacy makes 'walking-on-two-legs' or alternating between AfF and AfE a question of choice. And, by rendering this choice explicit,

Futures Literacy opens up the potential to imagine and construct human agency, at least in part, outside a causal deterministic framing. In other words, outside the logical constraints imposed by anticipation that uses the past to determine probable and preferable targets for human agency. These are indeed two different 'legs'. When 'using-the-future' to sense and make-sense of aspects of the present that are invisible or non-sensical on the basis of probable or preferable futures it is necessary to seek inspiration from outside the logic of probability and preference. A task that appears, in most cases, to be of no interest from the point-of-view of Anticipation for the Future (AfF).

Discovering the value and logic of Anticipation for Emergence is rendered even stranger, from the perspective of AfF by the fact that when we act to choose different anticipatory systems and processes there is no way to know if we are making the right choice. In other words, we can only experiment. The observation that much of the time the experiments work out as expected does not deny our fundamental ignorance at the moment we select a particular set of anticipatory assumptions and processes. From the stance of AfF it is disturbing that the only aspect of this process that is amenable to being less blind is the choice of anticipatory systems and processes. In other words, we can be a bit more Futures Literate. Still, this begs the question, so what? If the future is complex and fundamentally uncertain what good does it do to be aware that we can acquire the capacity to choose different filters or not? The answer offered here may not be particularly satisfying from the point of view of the old determinist, colonise-the-future perspective but it provides a reasonable rationale for becoming Futures Literate. In a nutshell, people who are Futures Illiterate run a double risk. One possibility is that they get stuck using one or a limited set of filters without even being aware. Two is that they are unable to consciously and deliberately 'use-the-future' to search analytically, systematically and more intentionally serendipitously for meaning in the emergent present. This makes them less able to: ask new questions, sense and make-sense of novelty, appreciate ephemerality because its connection to already imagined futures is not evident, and in general, improvise on the basis of constantly emerging unknowables – the wellspring of uncertainty that makes up the difference and repetition of the emergent present.

Of course, being Futures Literate or Illiterate does not change the indeterminate nature of complex emergence. Consequently, there is no way to be certain if in the end being skilled or unskilled in anticipatory systems and processes will play a role in better or worse outcomes. Humanity's resilience, for instance, will always be an open question – since uncertainty is the only certainty. But, we do have proof-of-concept level evidence (Miller, 2018) that being Futures Literate does 'make-a-difference' for why and how people 'use-the-future' and that the acquisition of this skill has an impact when it comes to detecting and inventing novelty as ontological expansion (Tuomi, 2017). Obviously this novelty can only exist once it has emerged, or at least the conditions for

the ‘creative’ moment (Boden, 2004) are in place. There is still no way to really know if we will ‘make-a-difference’, but as we shift onto the leg that uses the assumptions that seek probable futures, one of those probabilities can be greater openness to novelty. By getting better at ‘using-the-future’ by switching between AfF and AfE it seems we can also enhance our capacity to sense and make-sense of novelty. Once again it is worth stressing that getting better at a means for perceiving the world does not guarantee better outcomes.

Whatever the rationale, the only way to gain a better understanding of the nature and role of conscious human anticipation is to conduct further research (Poli, 2017). The contribution to such an endeavour made by this chapter and the on-going work around Futures Literacy (Miller, 2018) is to focus on discerning the attributes of the capacity to ‘use-the-future’ for different reasons and in different ways in different contexts. The rest of this chapter provides an initial look at research along these lines. It offers a brief overview of the Futures Literacy Framework (FLF), used to define and work with anticipatory assumptions, and describes some preliminary evidence that suggests Futures Literacy Laboratories are one productive methodological format for conducting research into anticipatory assumptions. The chapter concludes by examining the relevance for policy formation of getting better at determining the assumptions that define “strategic boxes”.

II The Futures Literacy Framework (FLF)⁴

The Futures Literacy Framework (FLF) presented in Figure 2 below has the ambition of providing “handles” or descriptors for characterizing the attributes and utility for a broad range of anticipatory systems and processes. The goal of the FLF is not only descriptive but also to assist with the explicit choices of conscious human anticipation. To continue the analogy to filters, the FLF assists with the effort to match filters to contexts, tools to tasks. The FLF is one way of discerning different reasons for deploying our imaginations – ‘using-the-future’ – and applying relevant methods for describing these imaginary worlds. The FLF as can be seen in Figure 2 classifies anticipatory systems and process along two axes – the ontological and epistemological, with a bias to diving deeper into conscious human ‘uses-of-the-future’. The ontological categories are on the left-hand side and the epistemological ones are on the upper right. Drawing the intersection between these two sets of characteristics situates FL in six distinct clusters of anticipatory assumptions (AA1 to AA6).

⁴ This section leans heavily on Miller (2018, Chapter 1).

This framework for describing why and how people ‘use-the-future’ is useful because it contributes to:

- developing FL by helping to construct the learning processes that enable people to ‘use-the-future’ in different ways depending on aims, means and context;
- exploring FL by helping to identify existing and new topics for research;
- determining the best methods to conduct research into FL by helping to select the appropriate design criteria; and
- FL as a practice by helping to determine which tools for thinking about the future are most appropriate for the kind of future being thought about in a given context.

Discipline of Anticipation (DoA) (Anticipatory Systems (AS))				Epistemological (Knowledge Creation Processes (KCP))	
				General- Scalable (GS) (statistics, common denominators, universals, repetition)	Specific – Unique (SU) (novelty, ephemerality, spontaneity, improvisation, difference)
	System	Purpose	Type		
O n t o l o g i c a l	Conscious Closed	Anticipation for-the-Future (AfF)	AS 1 Preparation & AS 2 Planning 	AA1	AA2
	Conscious semi- closed/ open	Anticipation for-the-Future (AfF)		AA3	AA4
		Anticipation for- emergence (AfE)	AS 3 Novelty (Not-doing)	AA5	AA6
	Non-Conscious Anticipation			Anticipatory Assumptions in biology, physics, mathematics, sociology, etc.	

Anticipatory assumptions

The FLF describes anticipatory systems and processes on the basis of a common unit of analysis: anticipatory assumptions (AA). The relevance of the term ‘assumption’ is relatively obvious in the context of the future since by definition the future does not yet exist. The future is imaginary, generated out of a set of assumptions, whether such

premises define the ⁵‘possibility space’ of a predicted future that is locked into non-conscious anticipatory systems and processes, at least for the present iteration, or conscious flights of fancy, the gamut of fictional inventions that humans exercise constantly. Putting AA at the analytical centre of efforts to understand anticipatory systems and processes also makes it easier to take into account the point raised above about the distinction between conscious and non-conscious anticipation. When anticipation occurs without explicit conscious imagining, such as with trees or single-cell creatures or through the functioning of capitalist competition, the AA at a systemic level are of an inherently non-volitional, non-agency based character. This is why the bottom of Figure 2 designates non-conscious anticipation as the kind of imaginary futures that are relevant to fields like biology, physics, mathematics, sociology, economics etc. In these fields the later-than-now, at an ontological ‘what-is-it?’ level, is defined and incorporated into anticipatory systems, at least up until very recently, by exclusively non-conscious evolutionary processes.

AA are also the descriptive and analytical building blocks of research into FL because conscious human anticipation can only occur on the basis of AA of one kind or another. AA are what enable people to describe and invent imaginary futures. The frames and models that are used to invent the content of the fictions that are conscious human anticipation can be described using AA. This means that FL can be described as the capacity to identify, design, target and deploy AA. One of the virtues of designating AA as the theoretical and practical core of human anticipatory capabilities (FL) is that AA can be described and situated on the basis of the intersection of different Anticipatory Systems and Knowledge Creation Processes, as per the FLF depicted in Figure 2. Conscious anticipation is fundamentally about producing fiction. As a result the KCP that are relevant are restricted to those frames (Kahneman, 2012; Lakoff, 2006; Bakhtin, 1981; Goffman, 1974) that enable meaningful descriptions of imaginary futures.

III: Initial Evidence from Futures Literacy Laboratories

This section briefly summarises some of the evidence generated by some of the FLL⁶ run at the outset of UNESCO’s efforts to explore anticipatory systems and processes. The results examined in this section focus primarily on two issues, one the

⁵ For a more in-depth discussion of so called ‘block time’, in which the past, present and future all coexist see the chapter by Tibbs in this Handbook. For the purposes of this chapter, however, it is assumed that at a practical level even if the future may exist simultaneously with the present, it is not accessible for the purposes of consciously deliberative human anticipatory activities.

⁶ This initial research was conducted at the beginning of UNESCO’s efforts to explore Futures Literacy, starting in 2012 and running through 2014, as discussed in Miller (2014)

extent to which people's anticipatory assumptions were revealed by being participants in FLL and what were the signs, if any that participants were becoming FL.

Overview of the FLL format and data collected

The core features of the FLL process, as presented to participants, reflected a set of common design principles that underpin each distinct FLL. These design principles were informed by previous work undertaken in a number of different settings. In particular, initial evidence of the nature and role of 'futures literacy' emerged from work at the OECD's International Futures Programme that provided an opportunity to experiment and observe both collective intelligence knowledge creation and using the future together (Miller, 2007). Efforts to elaborate and test the role and nature of anticipatory systems continued through experiments conducted by the Irish and Romanian governments as well as the European Commission (Miller et. al., 2010; Miller, 2010; Miller 2008). This work also connected researchers from a range of disciplines and designer/facilitators who started building communities of practice around different aspects of anticipatory systems and processes. Many of the researchers were part of an informal network called FuMee that emerged from a larger undertaking funded by the European Commission's COST program⁷. Many of the practitioners were part of the Association of Professional Futurists or the Futures Oriented Technology Assessment network sponsored by the European Commission's Joint Research Centres. All of these different strands of action-research were drawn together with the launch of the Scoping Global/Local Anticipatory Capacities project undertaken by UNESCO and sponsored by The Rockefeller Foundation, CGEE Brazil and Innovation Norway (Miller, 2014). The core purpose of this project was to engage with participants' anticipatory systems and processes in order to generate new information and specific questions regarding the nature of the way people use the future, through exploring specific topical issues in context.

These aims were given practical expression by undertaking FLL. The intention was that the FLL would materially contribute to efforts to address specific local concerns, tackling a complex, dilemma-filled situation not considered effectively tractable through traditional planning approaches. Each Lab was designed in collaboration with a local sponsor with a remit to address such a topic, convening local stakeholders (NGOs, policy makers, academics, activists, citizens) in a process running, in most cases, over one or two days. The Lab took as a starting point the existing assumptions and practices regarding the future that participants brought with them to the event, situating them within a domain of inquiry set by local priorities and concerns. Through making these existing future-facing ideas visible to participants, setting them in a novel and unfamiliar frame to examine and assess them anew, and using this reframing process to generate new questions regarding the topic under consideration, the process aimed to produce new perspectives on this domain, and to demonstrate the value of engaging with uncertainty and using the future differently. All FLLs were custom designed to take into account the specificity of each context. Reflecting the aspiration that the process embody the principles of enquiry through action learning,

⁷ http://www.cost.eu/COST_Actions/isch/A22

there was an overarching general architecture to the cognitive process – a learning-curve structure that guided the sequencing of the heuristics or a generic agenda. The following is a typical example of the design of an FLL event as a collective intelligence knowledge creation process that ‘uses-the-future’:

Phase One: revealing existing anticipatory assumptions.

In groups, participants discuss their understanding of the subject and their current beliefs and ideas about its future development. The conversation is conducted in two parts that distinguish hopes or preferred futures from likely or predicted futures. Afterwards, these breakout groups report back to a plenary session, sharing their imaginings of likely and hoped for futures: the facilitators help lead a discussion that identifies and elaborates the anticipatory assumptions as articulated by the participants – the largely tacit models used to imagine the future become more explicit.

The entire process relies on the same source, the ‘collective intelligence’ of the group, or shared meaning-making through a conversational process that obliges participants to examine and articulate what they imagine about the future of the chosen topic. Such conversations can be more or less structured, longer or shorter, mined for meaning or just skimmed, but in most cases comprise the easy (or at least less-steep) part of the learning curve. This is when people make their assumptions explicit, and try to find common meanings without necessarily seeking agreement or consensus.

Phase Two: reframing, inventing new anticipatory assumptions

In this phase participants take a further step in developing their understanding of the nature and role of the anticipatory assumptions they use to frame their imaginations and how the imaginary future can influence their perceptions, priorities and actions. In this way the collective intelligence process continues to develop their FL. Again, in practice, there are as many ways to undertake a reframing exercise as there are contexts. The central aim, however, is to enable participants to gain a better understanding of the nature and role of anticipatory assumptions by projecting themselves into a scenario or narrative that is radically discontinuous from the most familiar or dominant imaginaries or narratives. Then, on the basis of these ‘odd’ or difficult to assimilate anticipatory assumptions the participants try to describe the systems, structure and modes of agency, forms and mechanisms of knowledge creation and use, processes of communication, elements of social structures for trust and so on. The challenge of the reframing exercise is to enable participants to immerse themselves fully in this ‘alternative’ scenario through a process of ‘rigorous imagining’: the aim is not to explore the ways in which such a scenario might come to pass, nor to assess the extent to which such a scenario might be likely or desirable, but to accept it and ‘think oneself into it’ as completely as one is able.

One heuristic, deployed in a number of events, uses a detailed framework constructed to be radically different from current models of societal functioning, called the ‘learning intensive society’ (LIS) (Miller, 2006). Participants are provided with a series of analytical tools that enable them to describe a society in which the processes and structures of production and consumption have been fundamentally transformed.

On this basis, enabled by technological and capability changes, learning becomes the predominant value creating activity: society operates as a dynamic and continually-shifting set of interacting networks in which identities are more fluid, people participate in a culture of creative experimentation and rapid failure, and learning is something that happens continuously through this process. The LIS scenario is intended to challenge fundamental ideas about responsibility, agency, causality and the nature of the self, giving participants the opportunity to re-examine their anticipatory assumptions and thereby gain a better understanding of how the models they use and the ensuing ideas about the future alter their perception of the present, in addition to providing indications of the methods and communities they work with when using the future.

Phase Three: new questions, a capacity to think about changes in the conditions of change

In the third phase of the process participants are invited to revisit the anticipatory assumptions they articulated during the first phase and reconsider their models for describing the imaginary future in the light of a heightened awareness produced during the second phase of the process. The reframing phase offered participants a new vocabulary or palette with which to imagine and describe the future, making it possible to ask new questions that might, in the context of the old frame, have seemed unimportant or inconsistent or unimaginable. This session gives participants a direct experience of the way our sense of the current moment is shaped in part by the models and expectations we use to think about what happens next. Once again the purpose is to provide participants with an opportunity to articulate their anticipatory assumptions and become more aware of how the future enters into the perceptions and activities of their specific community of practice.

Data collected

The intention throughout the Networking to Improve Global/Local Anticipatory Capacities project (Miller, 2014) was to use FLL to generate data that would inform the sponsors' understandings of the way different groups make use of the future, and of the effectiveness of the process in developing FL. A set of general research tools intended to support this process were drafted by members of the project design committee (Miller, 2014). For a variety of reasons, including significant differences across places and cultures in the ways time and the future are represented and approached, a crucial design parameter for the design of FLL is co-created contextualisation. Collective intelligence knowledge creation processes that 'use-the-future' cannot work if the design does not take into account differences and variations in the organisation and expectations of each context. Such customisation, while indicative of the degree to which each event was a local product rather than implemented top-down, limits the ability to assess the relationship between formally identical processes and specific outcomes. With this in mind a number of surveys were carried out in order to generate qualitative data that could be analysed for indications that the sought-for impact was achieved. In addition, several summary reports were created by the organisers and facilitators of various events.

There are consequently a number of caveats regarding the data presented here, given the contingencies surrounding its production. The survey responses from each event (what might be considered 'primary' sources, consisting of participants' reports) are in general from a subset of those participating, in response to surveys written in English that offer a number of leading questions and assume particular understandings of key concepts. The reports from organisers (which might be considered 'secondary' sources) are necessarily partial and mediated accounts from a particular perspective. There is little empirical data available (some of the sessions were recorded, but resources for in-depth analysis were not available). The data shared should be understood as arising from different cultural and societal contexts, and not representative of the entire population of those attending these events (indeed, given the low response rates it should be understood as representing a minority). Consequently, the claims made from the analysis will be limited.

The data examined here is drawn from the following material:

Item	Event	Responses
Post-event survey	Youth to Adult Transition, Paris	13
Pre-event survey	Future of Cities, Paris	13
Post-event survey	Future of Cities, Paris	14
Post-event survey	Future of Universities, Sao Paolo	24
Event report	Future of Universities, Sao Paolo	-
Event report	Future of Local Labour Markets, Bogota (see case studies)	-

Analysis

The analysis of the evidence generated by the participants in FLL is structured around two research questions, derived from the aims of the Networking to Improve Global/Local Anticipatory Capacities project:

- 1) Do participants reveal anticipatory assumptions they use to imagine the future?

2) Are there indicators that participants have developed an understanding of FL?

Textual analysis of the responses to the Paris post-event survey (the item with the richest material from respondents) was carried out using a thematic coding approach. The research focus was embedded in the structure of the forms employed by participants to generate their responses, making it possible to begin by applying descriptive codes to participants' responses, then clustering these emergent themes into key categories that spoke to the overarching research questions. Having produced a set of codes capable of organising responses in relation to this analytic focus, they were used to analyse the remaining surveys from the Future Cities event and Sao Paolo, producing a revised iteration of the set of codes used to understand participants' representations of the process they went through during the event. This set of codes were used to structure an investigation of the reports from Sao Paolo and Bogota, looking for the presence of similar themes in the observations of the report authors.

Findings

In this section we describe what can be seen of the nature of the anticipatory assumptions from participants' responses, and assess the indications that they have developed FL. We briefly discuss the reflexive anticipatory assumptions made visible, the different framings of the future employed by participants, the different ways in which they suggest they use-the-future, the motivations that are offered for using-the-future, and their responses to the notion of FL.

Reflecting on personal anticipatory assumptions

Any investigation into the assumptions towards the future held by participants using the data collected will be limited, since the surveys presented a pre-defined and limited set of stances towards the future for respondents to choose amongst. A change between the options selected by participants before and after the events would be a relevant indicator, assuming that they originally held a different perspective towards the future. This was visible in a few cases: for example, in the Future Cities event one respondent offered these two responses to a question about how they think about uncertainty.

Pre: The future is uncertain. I look at the future sometimes with fear.

Post: Uncertainty – is not a threat, can be taken as a challenge.

A colleague at the same event noted that they were now able to:

take the time to question some of my own (and shared) assumptions that I use in my work in education/training policy about what young people will “need” to live, learn, be citizens, and work in the 21st century.

Others reported a new awareness of their thoughts towards the future.

When I think about the future, I think of many challenges of different sort : environmentally, politically, economically. At the same time I have a quite optimistic image of the future and for example when thinking about environment many new technologies come to my mind

After the Paris event, some participants noted a change in the way they considered the future:

New awareness of complexity of defining what an adult is; of the tension between social and administrative definitions and personal and tacit understanding and needs. Became aware of my own habits of mind about the subject through my interactions with the group and seeing their presuppositions

It made me question the definitions and social norms we adhere to when thinking about what characterizes that transition.

The workshop facilitated my out-of-the-box thinking about what those terms mean, whether they should mean anything at all, who defines those categories, and how they are shaped by and influence other systems

Became aware of my own habits of mind about the subject through my interactions with the group and seeing their presuppositions

the future as a construct is a very effective tool to make me aware of my own 'idées reçues' (*received ideas*) and also to loosen and stir up my creativity

And this respondent from the Future Cities event got to the heart of the issue:

After the workshop I had a feeling of uncertainty: I understood that the dominant structures in life (the paradigm) are not fixed and taken for granted. I now understand that this can be a source for real new ideas and insights. I guess that these methods really enable you to think out of the box.

Frames from personal and professional futures.

Participants noted a variety of ways in which they were asked to make use of the future in their personal and professional lives:

I use and think about the future all the time. For planning things, making decision, imagining projects

I usually use the results of data mining, participate in building scenarios and morphological analysis in urban and territorial design and planning, given that data mining, scenario methods and morphological analysis have the same meaning for an architect/planner, as I am, and for a 'future expert'

Managing risk

I have to think about my future first and how to plan what I want to do and be

There are, even in these short quotes, a range of approaches to the future: “imagining” projects and thinking about “my future”, creating visions of a desired future; planning and decision-making, projecting ideas of a desired future forwards from the present; “managing risk”, envisaging different futures with varying degrees of probability and preparing accordingly. One respondent names a set of techniques associated with formal planning practices used across disciplines. It can be seen, here, how different communities of practice might develop a practical familiarity with particular techniques and approaches towards the future that resonate with the concerns of the group. Indeed, two such communities are named — architects and urban planners, and ‘future experts’ — and their overlapping interest in specific tools noted. These tools might be considered ‘boundary objects’ (Star and Griesemer, 1989), facilitating the exchange of knowledge and ideas across different contexts.

Different ways of using the future

Some participants’ responses suggested different approaches towards their ‘use-of-the-future’:

I try to pay particular attention to the present and try not to lock myself into projections and imaginings about the future

The workshop has confirmed what I thought deep inside, that the future is not linear and that anticipating the evolution of things can help in designing my future

The issue here is not especially disciplinary — the concern is not immediately with asking whether engineers share a sense of the future with chemists or historians, for example, but rather with how different modes of knowing the future interact within subjects. These participants identify a number of different modes of knowing the future that co-exist: internal intuition (“what I thought deep inside”), constraining “projections and imaginings”, the contemporary technosocial problematique that frames our thinking about future conditions (“many challenges of different sort”) and personal visions that might be as much affective and dispositional as grounded in content (“a quite optimistic image of the future”). Again, these different ways of imagining the future are not presented here as inconsistent or in conflict with one another: as set out earlier, the FLF recognises that individuals have multiple ways of considering the future, whether formally as described above or on a more personal level.

Motivations for using-the-future

For many participants, engaging in anticipatory thinking was naturally linked to their wider concerns about social justice and the survival of future generations:

The main questions I have are concerned with global equity and if we will manage to share what we have so that people in the developing world can also have an adequate level of well-being.

I wish humans will survive forever on the planet. That's why I give a great importance to future literacy (decision making capacity) and the endeavour to change the conditions of change.

Do we need existing institutions (governments, rules, traditions, etc) or can we create new systems which could lead to more creative, happier, healthier, equal societies?

Here two characterisations of agency can be seen: action intended to create change, and action intended to create the conditions for the desired change. Both are part of AfF, in different clusters – the former in AA1 and the latter in AA3.

Developing futures literacy

The notion of 'futures literacy' appealed to many participants. One, at the Future Cities event described it as how:

to learn how to use the future in a better way. (For myself, for the society I am living in.)

While another at the Youth to Adult Transitions FLL in Paris was pleased to have learned about the existence of formal future studies.

It is great to know that there is a field that welcomes and encourages uncertainty, spontaneity, and a break from existing patterns in regards to futures-thinking

Some participants used language that recalled notions of complexity and emergence, concepts at the heart of futures literacy. One participant described their new understanding of

how [systems] are shaped by and influence other systems.

While others showed an awareness of the nature of connected factors:

I am more aware of the importance of networks (people, videos, internet, FaceBook, etc) in the exchange of knowledge and skills

impacted by many different evolving factors

New questions regarding the subjects of the workshops were generated:

What can we do with education in order to adapt to the transition to an evolving world?

How will universities and firms adapt to this new system of learning skills and studying?

Who decides? What is responsibility? What are the parameters of childhood?

How and by whom to judge the completion of transition process? What happens if the "young" is unable to complete the transition for "adult"? Is he/she regarded as failure of adulthood due to the transition?

There was reference made by participants to the value of embedding futures literacy within institutions (particularly universities — perhaps unsurprising given the number of attendees affiliated with academic institutions):

The main contribution can be teaching them "Future Literacy" which is an original idea and not used a lot in the curricula of universities.

All these can be done by arranging some courses (short term, longer term, summer schools etc) covering these issues. I am working in a university that my organization is partly doing this directly or indirectly through different activities.

My job is to help my institution 'develop' and so a big part of my function is encouraging (goading!) people into looking ahead and attempting to set objectives in the future

The immediate conclusion suggested, then, is that, notwithstanding the many limitations with respect to the collection of data, there is preliminary evidence that the FLL events did make the attributes and role of anticipatory assumptions clearer, and that they have the potential to develop the kind of FL described in the first section of this chapter.

III: Conclusion

In this paper we have offered an introduction to the idea of FL as a capability and FLL as a tool for revealing two aspects of FL: the shift from tacit to explicit anticipatory assumptions by participants, and indications from participants that they have developed an understanding of FL. In exploring these key aspects of FL we analysed some limited

preliminary data generated through surveys completed by FLL participants, identifying responses that indicated a new awareness of their anticipatory assumptions and changes in the way they represented the future. While the available data is still rudimentary, it does provide affirmative answers to the research questions. Participants in FLL did reveal assumptions regarding the future that were previously tacit, and provided a venue for them to engage with notions of complexity, uncertainty and possibility that enlarged their perceptions of the present. This offers a proof-of-concept level illustration of the potential of FLL processes to build FL and develop peoples' capacity to make 'use-of-the-future' in their decision-making processes. This is a preliminary conclusion, and it is clear that much additional research into the ideas introduced here is needed in order to generate evidence of the different attributes of FL as a capability and FLL as an effective and efficient tool for researching, learning and applying FL.

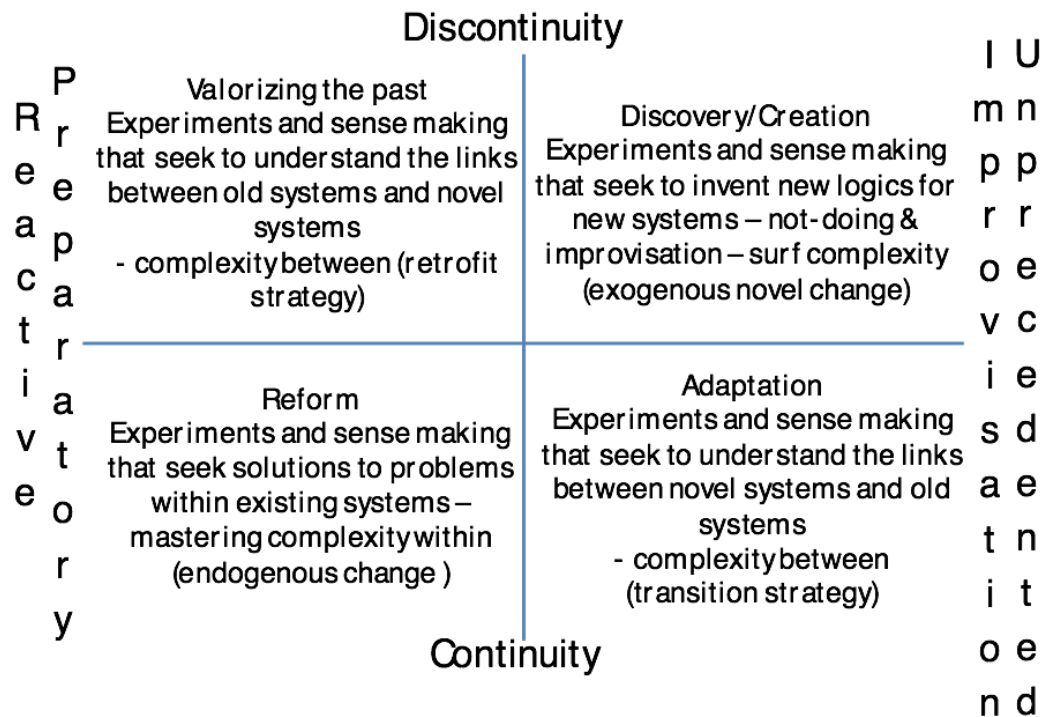
Even at this early stage in the research it is worth drawing attention to the implications of FL for understanding the relationship of human agency to both perception (search) and decision-making (choice). Figure 3 offers one way of explaining how being better able to 'use-the-future' can be useful. Succinctly, FL is one way to sense and understand change because the identification of anticipatory assumptions and the related imaginary futures generates clearer differentiation of endogenous changes that pertain to systemic continuity from exogenous changes that may be 'weak signals' of systemic discontinuity. In more prosaic terms we can think of this as a way of both generating items on a menu as well as categorizing them according to different courses. As everyone knows putting an item on a menu and assigning it to the category of appetizer, main course or dessert, does not determine what someone will choose from the menu, nor in what order. And of course many people skip dessert altogether. Furthermore, as every restaurant goer knows, what we imagine when we order may or may not correspond to what is delivered.

FL does not overcome the unknowability of outcomes, the fundamental inability to know if there will even be consequences of a particular choice (will what we ordered actually arrive) and if there are consequences will there be any congruence with what was intended or expected (did it taste as hoped). What FL does offer is greater clarity and capability to 'use-the-future' in ways that take into account the differences of perception and choice that arise when planning, preparing or exploring novelty. FL as a capability enables people to understand that the choice of reasons and methods for thinking about the future alter what we see and do. Being futures literate changes the meaning of trying to 'make a difference', be it through policies or laws or norms as collective actions, or through the personal experiential and preformative dimensions of meaning making and inter-connectedness.

FL makes the role of the imaginary future explicit and thereby allows us to choose amongst different anticipatory systems and processes depending on what we are trying to do. As Figure 3 attempts to illustrate, it could be a desire to reform or adapt or valorize the past or sense and make-sense of novelty. Each of which has value, none is inherently better than the other. Only the complex evolving world of which we are a part invites us to understand all four spheres of human agency and FL assists with that rich challenge.

What are we trying to help people to do?

Distinguishing search & choice, continuity & discontinuity



In closing it is important to underscore that the work presented here on the nature and potential of FL is not proposed as a way to exclude particular approaches to ‘using-the-future’. As Poli (2013) points out, there are many varieties of futures work, and some have more in common with practices such as medicine or architecture which do not necessarily require a theoretical base in order to make important contributions to society. What can be claimed here is that engaging with a theoretical perspective on anticipation and the future in order to design and interpret the outcomes of FLL shows some additional benefit. Using anticipatory systems theory offers a deeper understanding of the thought processes set in motion by FLL and provides frameworks for distinguishing different ways of knowing the future, and ontological tools for resolving what seem to be inconsistent or contradictory representations of the future (in particular the notions of categories of the future, levels of reality and the ‘thick present’). Engaging with theory also helps articulate more compelling arguments for developing the capacity to make use of the future: it offers an account of why some forms of knowing the future fail to support decision-making, by illustrating the contexts in which linear or probabilistic thinking is not appropriate, making a case for developing other ways of knowing the future, and it reveals something of the nature of our moral obligation towards the future, making the limits of our agency better known to us and illustrating the need to give proper consideration to why and how we use the future, rather than leaving it unexamined.

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