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Cover Page Footnote

The author would like to express his gratitude to the leaders who shared their rich experience during the interviews.



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Abstract

In ethics, prudence is an essential skill in making informed decisions. Although several studies in various fields have dealt with the notion, few empirical studies have addressed one of its inextricable aspects: anticipation. To gain a better understanding of the notion, this study questioned fifteen leaders whose peers consider to be “visionary” in their respective fields. The results of this qualitative study based on semi-structured interviews describe the fundamental aspects of anticipation according to three categories: reasoning and trend analysis, implementation and strategy, and personality and values.

Introduction

In ethics, *prudence* is often considered to be the “mother of all virtues” (Rouse and Rouse, 2008), as it is the condition that makes all others possible. Etymologically, the word prudence derives from the Latin *prudencia*, which means wisdom, foresight, i.e., the ability to “look ahead” to make informed decisions. Aristotle defined prudence as a “state grasping the truth, involving reason, concerned with action about things that are good or bad for a human being” (Aristotle, 2019). In the Christian thought of St. Thomas Aquinas, prudence is the most important of the cardinal virtues,¹ the one that is most necessary to human life. For the Angelic Doctor, “in order to act well, we need to make good judgments about how we should behave” and “not act solely as a result of impulse or passion” (Thomas Aquinas, 2000). Prudence works in many spheres of human action, including statecraft and strategic reasoning. Unlike science, it does not seek to attain a universal knowledge that can be translated into immutable laws. Rather, it aims for the *concrete* resolution of *specific* problems, which arise in a *unique* context and must be decoded, sometimes through recourse to more elaborate knowledge, and sometimes through more immediate intuitions. Thus, a doctor who knows how to detect an illness’s symptoms and prescribe the correct remedy and correct dose may be said to be prudent; the same is true of a professor who adapts his pedagogy to the context of the class and individual characteristics of his students.

¹ The cardinal virtues are essential virtues from which the other human virtues derive. There are four cardinal virtues: prudence, temperance (moderation), fortitude, and justice.

The academic literature on prudence is first and foremost philosophical. Primarily, it strives to define the meaning of this concept in the work of its principal founders in Antiquity (Greek and Latin) and the Middle Ages. In French, in 1963, Pierre Aubenque published a book called *La prudence chez Aristote* (Aubenque, 1963) [English translation: Aristotle's Prudent Man, 1964]. In this work, recognized as a credible reference on the matter, Aubenque associates prudence with a type of judgment about action that is suited to the circumstances. He also stresses one point: in his opinion, prudence cannot be detached from a cosmology in which the world is partially chaotic and unpredictable, pushing humans to develop "opportune" knowledge that is shaped by experience, good judgment and a good fit between the means and the ends. Aubenque's work on Aristotelian thought is part of a long series of extraordinary works published in the first half of the 20th century and dedicated to interpreting the work of the Stagirite. However, Aubenque's book is one of the few to focus exclusively on prudence. Among the works most well known in English at that time were *Aristotle*, by W.D. Ross (1923), and the Jaeger classic (1934), translated from German, *Aristotle: Fundamentals of the History of his Development*. As their titles suggest, the works focus on Aristotle's overall philosophy; there is little specific analysis of the concept of prudence. Of the more recent works in English cited in the *Stanford Encyclopedia of Philosophy*, very few focus on ethics (Shields, 2020).

The ethical contemplation of prudence, which began in Greek antiquity and continued in the Christian Middle Ages, crystallized in the ensuing centuries in a current of thought called "virtue ethics." In "normative" ethics, virtue ethics is one of three broad families of ethics theory, along with deontology and utilitarianism. In the 20th century, a renewed interest in virtue ethics developed subsequent to British philosopher Elizabeth Anscombe's critique of modern approaches to ethics. According to Anscombe, these approaches are too focused on universal principles such as the "categorical imperative" or the rule of the "greatest happiness of the greatest number," and neglect such things as the role of psychology and emotions (Anscombe, 1958). In *Virtues and Vices* (2002), another British philosopher, Philippa Foot, examines certain classic ethical problems, such as euthanasia and abortion, through the theoretical lens of the virtues. However, it may be in the work of Scottish philosopher Alasdair MacIntyre that the influence of virtue ethics reaches its peak. In his most well-known work, *After Virtue* (1981), MacIntyre proposes to contemplate the political and moral problems in philosophy from an Aristotelian perspective. In chapter 14 of his book, MacIntyre begins a systematic exploration of what the virtues are based on according to various historical conceptions, including Aristotle's, of course, but also those of other historical figures, including Homer, Benjamin Franklin and Jane Austen. However, despite the importance they place on the virtues in general, all of these works run aground on the concept of prudence.

More recently, *Virtue Ethics and Contemporary Aristotelianism* (Bielskis, Leontsnini, & Knight, 2019), a collective publication devoted to contemporary work inspired by Aristotelian thought, contains contributions on various subjects, but none of the articles delves more deeply into the concept of prudence. It is lost in more general considerations of the virtues or the idea of good. The same is true of *The Routledge Companion to Virtue Ethics*, published in 2015 under the direction of Besser and Slote, and *The Cambridge Companion to Virtue Ethics*, published in 2013 under the direction of Russell. Rather, it is in the theological literature that the issue of prudence resurfaces, primarily upon a rereading of the work of Saint Thomas Aquinas, considered by Pope Leo XIII as a suitable expression of Church doctrine. *Optatam Totius*, a decree on the training of Catholic priests proclaimed by Pope Paul VI in 1965, even invokes Thomas Aquinas as a master, "for so great is the power of the angelic Doctor's genius" (Paul

VI, 1964). The theological work on Thomas Aquinas and prudence is primarily “generalist” and most often boils down to explaining the theory set out in *Summa Theologica* or lauding its usefulness in understanding Christian morality (Thomas, 2019; Dubrulle, 2016; Reedy, 2012; Irwin & Irwin, 2007; McManaman, 2006; McCabe 1993; Nelson, 1992; Lemoine, 1991).

This type of exploration of the concept of prudence can also be found in academic literature in fields other than philosophy and theology. For example, Dobel (1998) suggests that prudence can help to reconcile political leadership with moral values. In law, Feldman (1998) asserts that prudence, and virtue ethics in general, can help better identify neglect in tort law. Through his conceptions of prudence and “just war,” Thomas Aquinas even makes his way into military studies, where some authors think that prudence can guide decision making in the highly uncertain context of the battlefield (Gorman, 2010; Reichberg, 2010; Robinson, 2007). Other fields, including management and medicine, also regularly invoke prudence as a potential solution to the ethical problems experienced in some professional activities. In a 2013 article, Marshall, Baden and Guiden even go so far as to claim that the fundamentally “psychopathic” nature of corporations has played a key role in global financial crises. Accordingly, these authors wonder whether the resurgence of ethical prudence might be a potential remedy for dealing with these destructive dynamics (Marshall, Baden, & Guidi, 2013). Similarly, other studies argue for a revitalization of management in capitalist societies through a rehabilitation of prudence and virtue ethics (Intezari & Pauleen, 2014; Müller & Bredillet, 2014; Grassl, 2010; Statler, Roos, & Victor, 2007; Kane & Patapan, 2006; Nielsen, 2006).

Edmund D. Pellegrino, one of the leading authors in biomedical ethics, puts the virtues, particularly prudence, at the heart of what a humanist medical training should be (Fins, 2015). Most proponents of a virtue-based approach to ethics and medicine stress that they foster a sensibility in health professionals that makes it easier for them to go from general principles, such as the principles arising from their codes of ethics, to application in the array of singular cases they see in practice (Vizcarrondo, 2012; Armstrong, 2006; Gardiner, 2003; Jansen, 2000; Pellegrino, 1995). However, astoundingly, the concept has not been the subject of more systematic study in applied ethics, although even the act of interpreting general knowledge in order to act correctly in individual cases involves prudence as defined by Aristotle and Thomas Aquinas. A better understanding of prudence offers a key to what has made many decision makers successful in a wide array of fields; it means understanding how they were able to seize the opportunities that arose and turn them into the success upon which they built their reputations.

Purpose of the Study

To advance our grasp of the concept of prudence, we decided to go beyond what academic research has proposed to date, and look into the forms of reasoning used by people whose excellent judgment has made them stand out in their fields. More specifically, using an empirical approach that goes beyond the framework of purely theoretical philosophical reflection, we decided to focus on a central aspect of prudence that has not received much attention: i.e., *anticipation* or *forward reasoning*. Forward reasoning is focused on the future. It seeks to identify potential future scenarios so as to, in the present, adjust the decisions, actions and strategies that will have short-, medium- and long-term consequences (Poli, 2017). For Thomas Aquinas (2000), anticipation is the “principal part of prudence, to which others are ordered and in the context of which they play their role.” Clearly, in many fields, the

ability to realistically predict what is going to happen in the near future provides an individual or organization with an enviable strategic edge, especially in a competitive environment. In light of these considerations, our study's *objectives* were: 1) *To establish how, in their work, someone whose peers deem to be visionary structures their forward reasoning to orient decision making;* 2) *To determine what personal qualities and ethical values are deemed essential to their work from the perspective of the visionaries themselves.*

Methodology

Population and Sampling

To achieve our research objective, we first had to establish which population seemed the most able to inform us about forward reasoning. At the outset, it seemed obvious that people who were considered by peers to be “visionaries” in their respective fields would certainly be of interest in grasping, concretely, how the mechanism of forward reasoning or anticipation may operate. By definition, a “visionary” is someone who can conceive of and communicate an image of the future (van Knippenberg, D. & Stam, D., 2014). Rather than restricting ourselves to a specific professional field, we decided to open our investigation to all professional fields. This decision is justified by the idea that, if we want to learn the fundamental operating modes of forward reasoning, it would be better cross disciplinary boundaries. In total, recruitment messages were sent to about 20 people. No one who responded to the message declined to participate in the research. The others simply did not respond to the email. We therefore approached 15 people (11 men and 4 women) from different professional backgrounds who had a range of years of service. Some, despite their reputations, were relatively new to their fields (less than 10 years), while others had been in that field for over 25 years. *Table 1* provides a snapshot of the profile of study participants. They all came from the same geographic region in Canada. They were identified through an Internet search that used keywords such as “visionary,” “leader,” “avant garde,” etc. The keywords of our search were related to our desire to find not only leaders, but also people with the ability to see trends coming, therefore to anticipate. The Internet search also yielded more information about their careers and the level of recognition they were getting from peers. Information about the leaders was gathered from well-known newspapers or magazines in their home countries, mostly in articles highlighting their professional accomplishments. Where these people enjoyed substantial recognition because of their role as visionary, we contacted them by email to request study participation.

Data Collection and Analysis

The perspective on forward reasoning we opted to develop in this study is *phenomenological* and *qualitative* (Valle & Halling, 1989). This perspective does not always offer the same power to generalize knowledge as quantitative approaches, but, on the other hand, it fosters a broader, *pragmatic* comprehension of what visionaries *actually do* when they anticipate trends. To question them, we used semi-structured interviews. As often occurs in this type of research, we applied the *saturation* principle to determine the final sample size (Saunders *et al.*, 2018). More specifically, we stopped interviewing when they were no longer contributing new information about forward reasoning structures (the study’s general objective). The first section of the interview guide dealt with the participant's professional profile (field, number of years of experience, etc.); the second section focused more closely on forward reasoning and the “methods” used to anticipate trends. The interviews lasted an average of 45 to 60 minutes. Some were conducted in person but most were done over the phone or by Zoom. The

interviews were held between October 2019 and November 2020. The software NVivo, version 12.6, was used to analyze the data from the interviews. One person (the principal investigator) handled transcription and data analysis. The study's objective was to understand *how* forward reasoning worked from the perspective of the players themselves. Since the data collected was already somewhat structured due to a conceptual framework (see *infra*) that defined the main components of forward reasoning, which were included in the interview guide, we performed a content analysis with the aim of *exemplifying* how each visionary leader interviewed mobilized his or her personal cognitive resources and data from the environment to anticipate trends. Accordingly, we did not attempt to establish frequencies or usage occurrences for any of the components of forward reasoning. Instead, we attempted to illustrate, via deductive codification of the data (Mayan, 2009), how the visionary leader's description of his or her mode of forward reasoning related to the components of this type of reasoning listed in the literature. This exercise should make it possible to identify elements common to the leaders, as well as differences and specificities associated with the context in which the prediction work is occurring.

Conceptual Framework

To better identify the main components of forward reasoning and anticipation, we reviewed the scientific literature on future studies. These concern “the systematic studies of possible, probable and preferable futures including the worldviews and myths that underlie each future” (Inayatullah, 2013). The future studies include six primary aspects: 1) mapping the future; 2) anticipating the future; 3) timing the future; 4) deepening the future; 5) creating alternatives; 6) transforming the future (Inayatullah, 2013). Anticipation therefore pertains to the second objective of the future studies. The primary method used for anticipation is called *emerging issues analysis* (Inayatullah, 2013; Molitor, 2003). It involves identifying certain trends ahead of time to avoid problems or, in contrast, to capitalize on certain opportunities. Based on the model developed by Molitor (2003), the future unfolds based on a spatiotemporal curve that stretches over many years (often decades). In its early phases, a society's most visionary individuals, who belong to a very rare intellectual elite (only a few people), succeed because of their acute sensitivity, nonconformism and superior reasoning ability that is better at perceiving “weak signals” or “emerging issues.” These seeds of the future initially manifest as subtle signs, such as isolated, surprising, bizarre events with no apparent meaning. After that, these seemingly isolated events gradually aggregate to enable more systematic interpretation. In general, certain privileged loci in advanced societies, such as creative centres, major research centres and top universities are among the first social institutions to grasp these emerging trends. It is at this time, called the “take-off point,” that ideas began to percolate into various social strata until they reach the final phases of the spatiotemporal process during which the “influencers,” the “public figures” and “general public” end up absorbing the trends and making them a reality, a truth (Molitor, 2003). As Hiltunen (2008) points out, epistemologically, this process of interpreting trends oscillates between observing the signs themselves, the form they take in materializing (concepts, works of art, etc.), and the meaning they may yield.

Broadly, we can therefore judge that the forward reasoning process as such includes fundamental *external* (or objective) dimensions, such as *analysis of weak signals*, and adequate identification of innovation sources in the present time. To be mobilized correctly, these external dimensions must be complemented by internal (or subjective) dimensions associated with their interpretation, such as *openness to new things, originality, sensitivity,*

empathy, nonconformism, self-confidence and so forth. The internal dimensions thus arise from the personality and the values that inform it. To express this conceptual framework in our study, we developed a data collection tool, the interview guide, which included three parts made up of semi-open questions which picked up the fundamental dimensions of anticipation and forward reasoning. Thus, one question dealt with signal analysis, another focused on the choice of scenarios of the future based on various constraints, and another question dealt with the subjective dimension based on the ethical or moral values driving the choices. The first part of the interview guide was used to create a socio-professional profile of the participants, while the third and last part dealt with a visionary's key personal qualities. Reasoning was mainly covered in the second part of the guide.

Results

In the first part of the interview, study participants were asked to explain their work, and the circumstances that led them to engage in forward reasoning. *Table 1* describes the participants' socio-professional profile.

Table 1: Socio-Professional Profile

Sex	n	n%
<i>Women</i>	4	27%
<i>Men</i>	11	73%
Total	15	100%
Sector	n	n%
<i>Business, Marketing, and PR</i>	1	7%
<i>Arts</i>	2	13%
<i>Community</i>	1	7%
<i>Design</i>	4	27%
<i>Health and Wellness</i>	2	13%
<i>Science and Technology</i>	3	20%
<i>Sports</i>	2	13%
Total	15	100%

Table 2 reports what participants said during the interviews about *reasoning and signal analysis*, and about *implementing ideas and strategy*. The table identifies the broad themes associated with each question and provides verbatim summaries to illustrate them. The list of themes was defined by sticking as closely as possible to the temporal and logical sequence of operations in forward reasoning. To protect participants' anonymity, the verbatim summaries are numbered (participant 1 = P1, participant 2 = P2, etc.). The verbatim summaries were assembled from the interview notes. They therefore do not repeat the content of each interview word for word, but are very faithful to the original statement. This procedure made it possible to group sometimes very similar statements by participants into a single summary, and to correct certain linguistic errors (grammatical mistakes in speech). Saturation was reached for all questions. This does not mean that no new information would have emerged if further interviews had been conducted, but it was becoming more and more unlikely, so it was preferable to halt the interviews.

Table 2: Reasoning, Trends Analysis, Implementation and Strategy

	Themes Addressed	Verbatim Summaries
Reasoning and Trends Analysis	1) Emergence of a Problem or Need: Objective and Subjective Dimensions	<p><i>My forward-looking assessment is based on an examination of people’s needs. I then try to find concrete solutions for meeting these needs over the long term (P14).</i></p> <p><i>I look at what exists in my field, paying more attention to unsolved problems (P1, P6).</i></p> <p><i>I feel strong emotion, disgust (P3), dissatisfaction (P4) with what is already there. This makes me want to change things (P3, P4).</i></p> <p><i>The needs manifest on several levels: emotional, psychosocial, material, technical, etc. (P14).</i></p> <p style="text-align: center;">-----</p>
	2) Observation of Patterns and Trends	<p><i>I take in so much information that it becomes easier to see how large movements get going ... My vision is systematic: economic trends determine behavioural trends which determine aesthetic preferences (P6).</i></p> <p><i>I draw on what some other innovative organizations or individuals are doing (P4, P5, P8).</i></p> <p><i>A thorough, longitudinal study of past data helps me reduce the margin of error for my predictions (P2).</i></p> <p><i>I observe how mentalities change through the ideas that are circulating in the media, specialized writing, expositions, lifestyles (P7).</i></p> <p><i>I sometimes look at history, because the same errors repeat themselves. Transdisciplinarity is very important. I don’t rule out any perspective (P10).</i></p> <p><i>Expectations are created at various “altitudes” (short, medium and long term), in separate spaces (local vs. global) (P12).</i></p> <p><i>I don’t look at trends. Real leaders don’t look at trends. They invent. For me, it is daily reality that inspires me (P9).</i></p> <p><i>I map, I visualize, I create groups, and I try to establish connections between them. I let the system soak in, like a puzzle (P10).</i></p> <p style="text-align: center;">-----</p>
	3) Intuition and Critical Thinking	<p><i>In problem solving, the first intuition arises from confronting the information. The first intuition must then be refined through a testing process. Sleep plays an important role in the process (P6, P11, P15).</i></p> <p><i>You have to let your thoughts wander to encourage intuition. I do it through meditation. Then I go to the office and ask other people what they think about it. The subconscious generates intuitions by drawing on experience (P15).</i></p>

	<p>4) Chance and Opportunities</p>	<p>-----</p> <p><i>You have to be able to glimpse the possibilities and grasp opportunities that arise, often by luck. Luck only favours those who are prepared (P13, P14).</i></p> <p><i>I've got a general plan. However, in terms of details, I leave room for contingencies (P5).</i></p> <p><i>In general, in our field, deductive reasoning doesn't get you very far (P13).</i></p> <p><i>It's like I'm a guitarist. I let my fingers work and I watch where the spontaneity takes me (P10).</i></p>
	<p>5) Individual Group Dynamics</p>	<p>-----</p> <p><i>Talking with others creates a synergy that fosters innovative ideas (P1, P2).</i></p> <p><i>We always make decisions together, as a team. The diversity of perspectives enriches the process (P4, P11).</i></p> <p><i>I believe strongly in the power of the group. My ideas first come to me when I'm running, and then I take them to my team (P8).</i></p> <p><i>We do most of our reflection as a group (P15).</i></p>
Implementation and Strategy	<p>1) Realization of Ideas</p>	<p><i>Innovation requires a good alignment between the concept and its realization. It's a two-way (iterative) and continuous process (P1).</i></p> <p><i>Innovation is easier in an ecosystem with adequate financing, with several stakeholders involved (P1, P15).</i></p> <p><i>We create scenarios that we test based on their effectiveness (P2).</i></p> <p><i>We do modelling using mock-ups (P3).</i></p> <p><i>I look at the "scales," i.e., ease of production or ease of disseminating an idea (P7).</i></p> <p><i>Darwinian logic has a role to play in the world of ideas. The best ideas survive better (P13).</i></p>
	<p>2) Spatiotemporal Constraints</p>	<p>-----</p> <p><i>It is important to analyze the structural levels of resistance to change that lead to degrees of hybridization with the past (P12).</i></p>
	<p>3) Importance of Consensus</p>	<p>-----</p> <p><i>It is important to build consensus around my decisions. Everything is easier once you have a consensus (P14).</i></p>

Table 3 sets out participants' answers regarding the *ethical values* that are deemed the most significant, and the *personal qualities* a visionary leader must have. The table also includes the broad themes addressed, and verbatim summaries. As in *Table 2*, saturation was reached for all questions.

Table 3: Ethical Values and Personal Qualities

Questions	Themes Addressed	Verbatim Summaries
Ethical Values	1) Micro: Prioritization in Individual Reasoning	<i>My values dictate 100% of what I do. I strongly believe that our decisions must reflect our values. I don't just want to make money. I want to make a difference (P1, P2, P4, P5, P6, P7, P8, P9, P10, P11, P13, P15).</i> -----
	2) Meso: Interactions with Others or Institutions	<i>For me, lying and betrayal are almost crimes against humanity. It's important to be real (P6).</i> <i>My attitude is based on integrity and transparency. I say what I think (P15).</i> -----
	3) Macro: Realization of Ideals	<i>When our values are no longer found in the work, that's when we get lost (P5).</i> <i>At the end of my life, I want to be able to say that I did my best, I was true to myself, that I did what was right (P9).</i> <i>Our mission is to serve others. All of our actions must be in line with this value (P14, P15).</i> -----
	4) Key Values (ranked by the number of occurrences in the verbatims)	<i>Integrity, openness, empathy, perseverance, generosity, respect for the environment, humility, egalitarianism.</i>
Qualities of a Visionary	1) Key Qualities (ranked by the number of occurrences in the verbatims)	<i>Community-building, persuasive, curious, creative, passionate, confident, cultivated, intuitive, humorous, flexible, pragmatic.</i>

Discussion

The qualitative results were grouped around three broad categories that cover both the external and internal dimensions of prospective reasoning.² The external dimensions involve reasoning as such, analysis, and implementation and strategy. The internal dimension is addressed through cognition, values, and some traits of the visionary personality. The results obtained through the interviews help discern forward reasoning through the logical steps in processing information and grasping its manifestations in various settings and configurations in the outside world. They also offer an interesting and, in some respects, innovative perspective on the cognitive processes that underlie the virtue of prudence. The possibility of understanding anticipation and forward reasoning across this continuum based on the introspection of the individuals themselves is one of this study's primary scientific contributions. The contribution seems even more substantial in ethics, insofar as few empirical studies have been conducted on these issues.

² "Prospective reasoning" is a notion used as a synonym of "forward reasoning" and "anticipation."

Reasoning and Trend Analysis

Based on the statements of the leaders who participated in the study, forward reasoning is initially triggered by a “problem” or “need” for which no satisfactory response currently exists. This “lack” generates an emotion, a fairly intense dissatisfaction that drives the person to seek innovative solutions by analyzing “what is.” Cognitively, it makes sense to associate this process of “rapid” reasoning (Evans, 2003) or “system 1” in *dual-process theory* (Kahneman, 2011) with a type of “intuition.” Given that intuition was not a specific theme in the interviews, it is hard to establish what type of intuition could be associated with what the visionary leaders described during the interviews. However, using the classification proposed by Hogarth (2010), it seems permissible to associate the judgment or “dissatisfaction” they describe with a type of *matching intuition*. This orients the interpretation of the external world's configurations by establishing links between the *images, patterns, prototypes* or *schemas* recorded in subconscious memory and acquired through experience. It helps perceive inconsistencies in a situation, that is, the functional deficit and sub-optimality of some solutions that must be remedied. In this sense, *matching intuition* seems to form one of the cognitive bases of the study of *weak signals* and *emerging issues* required for anticipation. Leaders' statements in the interviews also suggest that emotion is not solely used as the starting point for intuition. It triggers the search for solutions by fueling *interest* and *curiosity* (Silvia, 2008). The latter dimension, however, is not much addressed in the scientific literature on cognition.

Some leaders also noted that the cognitive process involved in activating intuition and creativity, which feed forward reasoning, greatly benefit from certain rituals that promote a state of mind that is conducive to creation. Some said they meditated; others engaged in sports or reading. The literature on creativity has widely proven these benefits, although little has been written on anticipation as such (Agnoli *et al.*, 2018; Horan, 2009). This contribution seems to be explained by the positive or negative moods generated by these rituals (Nijstad *et al.*, 2010). On the other hand, while emotion and intuition work upstream of and participate extensively in the anticipation process, the fact remains that, for many leaders, it is important to subject creative ideas to the *challenge of critique*. Numerous leaders stressed this aspect, saying that spontaneous ideas must always be refined. Often, this process is conducted as a *team*, most of the time aiming for *consensus*. This is not surprising, as the group's positive impact on decision making has been broadly proven in social psychology over a number of decades (Laughlin *et al.*, 2006; Cooke & Kernaghan, 1987).

As described by the leaders, the process of analyzing trends seems to operate based on a few “basic semantic operations” (Allwood & Gärdenfors, 1999). The first concerns what some leaders called the *systemic* approach. The systemic approach examines a phenomenon based on its interactions with a broader context and environment (De Rosnay, 2014). For example, one of the leaders interviewed stated that societal economic trends explain people's aesthetic preferences, and therefore their consumer behaviours. The standards that orient individual choices are thus influenced by affiliation with a given society or world. Cognitively, this approach relies heavily on the study of *relations* between data in a circumscribed set (the set of individual choices, for example) and those belonging to another set (the set of economic trends) to establish links. The systemic approach therefore encourages a type of synthesis, in which several data sets are compared to gain a better understanding of a specific phenomenon. A second basic semantic operation concerns the evolution of phenomena over time. Leaders pointed to the importance of paying attention to the study of fairly long temporal

sequences in order to observe how phenomena transform. Here, time provides a series of changes of states and properties that may make it possible to “predict” the future through deduction based on past events.

At a more sociological and political level, some leaders pointed out that general culture, interdisciplinarity, a close eye on the news, and knowledge of the many loci of innovation in a specific field favour forward reasoning and anticipation. This idea is consistent with what the studies of creativity have to say. In his book on creativity, Sawyer (2011) reports the results of various scientific studies of the traits of people deemed creative by peers. These traits include *discernment* and *alertness*, which are based on the fact that “they have a wide range of information at their command” (MacKinnon, 1978).

The leaders raise a very interesting question that has not received much study in the literature. To be ahead of their time and anticipate trends, they say it is essential to know how to capitalize on the *opportunities* that chance provides. But what ability does a leader have to have to be “opportunistic”? Once again, it seems to require intuition, at least in part. In a study of executives who are recognized as being “highly intuitive,” Agor (1986) explained the conditions under which intuition becomes especially useful in decision making: 1) when uncertainty is high; 2) when there are few precedents to draw on; 3) when a problem’s variables are less scientifically predictable; 4) when there are not enough “facts”; 5) when analytical data is of little use; 6) when a decision has to be made between several valid alternatives; 7) when pressure and a lack of time require a quick decision. Several of these conditions are present when an unexpected opportunity materializes. In the case of anticipation, in addition to these conditions, there is the need not only to make a decision in the present moment, but also to “project” oneself into the future, which corresponds to a specific kind of “intuitive” decision making in the context of uncertainty (Akinici & Sadler-Smith, 2012).

Implementation and Strategy

A good idea is not good for much unless it is feasible. This is why we addressed the issue of implementation and the stages in realizing an idea or concept with the leaders. With respect to transitioning from the idea to its execution, several fairly well-known factors were cited, such as adequate funding of research, the use of scenarios, modelling, or prototypes that are tested before being rolled out. Well known in project management (Wynn & Eckert, 2017), the importance of iterative processes that enable repeated, concrete testing of ideas was also stressed. The theme of society’s *resistance to change* was also identified as a bar to realizing innovative ideas. On these issues, nothing that was new in comparison with the existing literature emerged, but the theme recalls the fact that *constraint*, regardless of its form (spatial, temporal, axiological, etc.) is an inevitable dimension of anticipation. If a good idea is a feasible idea, its feasibility must therefore consider the constraints that oppose it. In fact, some more recent studies on creativity even report that constraint is a factor that enhances creative problem solving (Medeiros *et al.*, 2018). However, as we will see, insofar as the visionary leaders associate creativity with the power to anticipate, through deduction, we can assume that the aptitude to perceive the constraints and means to overcome them constitutes an essential characteristic of forward reasoning.

Ethical Values and Personal Qualities

Ethical values were addressed at the various levels at which they manifest. The “micro” level is *intrapersonal*; this is the level at which values act to shape preferences, prioritize actions,

make choices (Bardi & Schwartz, 2003). Here, the leaders did not say anything that was very new. They simply insisted on mentioning that their personal values constantly guided them in their work. More interesting, however, was that *all* of them stressed the importance of following their values in making decisions. For them, the most important motivation was “making a difference,” helping to create a better world based on their chosen values. While our study does not offer a complete answer, this idea poses an interesting question: do leadership and anticipation require a form of “selflessness”? This may be so, insofar as “selfish” thinking is no doubt more aware of the present and of short-term gains. Instead, anticipation and visionary leadership require a gaze that focuses on a longer time line. For the leaders, values also work at a second level, *interpersonal relations*. Here, the values guide such things as communication and negotiation in the context of work. Although leaders were not asked to elaborate on the style in which they interact with others, their answers contain an indication of their preferred approach. Those who dealt with it explicitly mentioned favouring integrity, transparency and truthfulness in their relations with others. As the literature on the psychology of human resources management shows, this ranking of values reflects broader social and cultural norms (Leung *et al.*, 2011; Adair, Okumura, & Brett, 2001; Heydenfeldt, 2000). Aiming for transparency and truth may lead to a more “direct” style of communication which is not necessarily universal, and which is distinct, for example, from the search for harmony and moderation in the external expression of emotions valued by certain Asian cultures (Huang, 2016; Chen *et al.*, 2015; Xiaohong & Qingyuan, 2013; Chen & Ma, 2002). At a third level, the values express an ideal, a certain *state* in the observable world. The distinctions between the definitions of values conceived of as either “cognitive filters” for personal choices or as an objective “configuration” of the outside world are fairly similar to the theory of values developed by Rokeach (1973). First, there are “instrumental” values, which guide behaviour, and then there are “terminal” values, which are *end-states of existence*.

The importance of values for the leaders is also put into perspective in the literature on *value-based leadership* (Brown & Treviño, 2003), and perhaps particularly since the financial scandals, such as Enron in the early 2000s (Da Silveira, 2013; Petrick & Scherer, 2003). For example, the literature on influence and *transformational leadership* deems ethics and values to be indispensable to some leadership roles, such as acting as a role model or facilitator for an ethical climate in an organization (Diaz-Saenz, 2011; Bass & Riggio, 2006). It is interesting to see how the visionary leaders who participated in our study ranked the ethical values they think are most important. In the interviews, these values were not explicitly associated with anticipation and its underlying processes. Rather, they seem to be associated with what has made them successful in managing their work life. Some of them, like generosity and empathy, are similar to the character traits of a transformational leader, such as extroversion or openness to experience (Bono & Judge, 2004).

In wrapping up the interviews, we focused on a visionary’s personal qualities. We simply asked: “In your opinion, what are the key qualities of a visionary in your field?” The answers the leaders gave are fairly evenly distributed between what they think is important for providing effective leadership in a group, and what creates an environment that is conducive to anticipation. While there is abundant literature on the personal qualities of a good leader (Lorg, 2007; Antonakis, Canciolo, & Sternberg, 2004; Atwater, Penn, & Rucker, 1991), as well as on innovation in science and technology (Piscione, 2013; Gallo, 2011; Hargadon, 2003), less has been written on the self-reported personal qualities of visionaries from various distinct fields. Among the qualities that are more closely related to anticipation, some, like curiosity,

creativity, passion and intuition, are fairly predictable, but others, like culture, self-confidence and pragmatism, may be more surprising. How is confidence conducive to forward reasoning? Is because it makes it possible to go off the beaten track? As for pragmatism, is this not the opposite of the “dreamer” image we usually associate with visionaries? A sense of humour was also cited as a quality in some visionaries. The ability to make people laugh is certainly helpful in creating a pleasant work environment, but can it also be associated with the type of distance and critical thinking that are often necessary for cutting-edge work? These matters surely merit more in-depth investigation, to better grasp certain anticipation mechanisms.

Conclusion

Study Highlights

The primary objective of our study was to contribute to ethics through an empirical examination of an aspect of prudence that has received little attention: anticipation. To achieve it, we opted to question leaders from different fields who were characterized by peers as visionary. We grouped the interview results into three categories: reasoning and trend analysis, implementation and strategy, personality and values. Visionary leaders’ reasoning rests on a special intimacy with their emotions and intuition. These are often activated through rituals, like sports and meditation. The ideas that emerge spontaneously thanks to intuition, often associated with patterns and schemas, are then subjected to rigorous critical challenge, most of the time conducted as a team, in a spirit of consensus. In the analysis, the ability to adopt a systemic perspective driven by continual curiosity and excellent general culture seems to foster anticipation. For implementation, the leaders stated that, among other things, it is essential for creativity to be able to work within constraints that are sometimes heavy. Lastly, in terms of values, most visionary leaders place great importance on integrity, truth, and transparency. However, their statements also intimate that selflessness is at the heart of their desire to change the world and make a difference in society.

Limitations of the Study

The first and most obvious limitation of our research design is the sample size. Although we gathered a great deal of information through the interviews, it is impossible to say that the knowledge generated by our research design is generalizable. The second limitation stems primarily from the “transversal” character of the questions put to the visionary leaders, and the qualitative approach of the research design. It would be interesting to delve more deeply into certain questions within each of the broad categories in our interview guide. For example, several questions raised in the discussion deal with reasoning and cognition. These questions would no doubt identify more precise answers that would be more generalizable in experimental and quantitative studies than those that are typically found in psychology. Among other things, one research strength could, in some aspects, be revealed as weakness at the same time. We therefore strove to understand anticipation through a sample of leaders from various different fields. Such diversity certainly allowed us to grasp anticipation’s “fundamentals” but it may also have made it more difficult to examine features specific to each field. Lastly, despite our efforts in this area, we were unable to recruit an ethnically diverse sample. Nearly all the leaders interviewed belong to the majority ethnic group and have a Western vision of work, creation and personal interactions. Given the cultural facets of some aspects of forward reasoning, the results may have differed with a more varied sample.

Suggestions for Further Research

Our study's limitations provide good indications of what could be undertaken to advance scientific knowledge of prudence and anticipation. The option that would most obviously round out our study would be an experimental, quantitative study of a large, ethnically diverse sample. The answers provided by this type of design would clearly be useful in better understanding prudence and anticipation, but it would likely not be easy to create a statistically adequate sample of visionary leaders prepared to participate in the experimental tasks involved. Another original perspective on the matter could be built around empirical sociological studies of environmental or institutional factors that foster anticipation and avant-garde thinking. First, do such factors exist? If so, what are they? Such a study could proceed via biographical research (Erben, 1998), with a systematic analysis of the social and environmental factors that appear to have contributed to developing the personality and world view of visionary leaders. Lastly, another original question could deal with the "proceeds" of anticipation. What is an avant-garde work? What are its characteristics? What do these works tell us about the era, the passage of time, the longevity of innovations or the relationship between the human mind and the subject? Such questions may be of interest in history, the study of the arts, sciences and technologies. In light of the scope of these questions, it is easy to note that, by examining prudence and anticipation, scientific research has access to many secrets of human ingenuity and moral excellence.

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